

A large, stylized letter 'A' is formed using the characters 'S' and 'Y'. The 'S' characters are arranged in a grid-like pattern to form the left and right sides of the letter, while 'Y' characters form the central vertical stem and the diagonal crossbars. The overall shape is a bold, blocky 'A' that fills most of the page.

[illegible]

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SSSSSSSSSS DDDDDDDDD LL
SSSSSSSSSS DDDDDDDDD LL
SS          DD          DD LL
SS          DD          DD LL
SS          DD          DD LL
SS          DD          DD LL
      SSSSSSS DD          DD LL
      SSSSSSS DD          DD LL
                SS DD          DD LL
                SS DD          DD LL
                SS DD          DD LL
                SS DD          DD LL
SSSSSSSSSS DDDDDDDDD LLLLLLLLLL
SSSSSSSSSS DDDDDDDDD LLLLLLLLLL

```

age

{ Version: 'V04-002'

{*****
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{ FACILITY: VAX/VMS System Macro Libraries

{ ABSTRACT:

{ This file contains the SDL source for all operating system control
{ blocks, from A to E. That is, all control blocks from AAA to EZZ.

{ ENVIRONMENT:

{ n/a

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{ AUTHOR: The VMS Group

CREATION DATE: 1-Aug-1976

{ MODIFIED BY:

{ V04-002 ACG0467 Andrew C. Goldstein, 12-Sep-1984 17:28
{ Add separate read and write protection check bits to CCB
{ V04-001 SRB0145 Steve Beckhardt 9-Sep-1984
{ Moved CDRP\$L_VAL9 into regular CDRP out of long CDRP.
{ V03-156 RLRBIDEFS4 Robert L. Rappaport 21-Aug-1984
{ Once more another update \$BUADEF from even newer, newer specs.
{ V03-155 RLRBIDEFS3 Robert L. Rappaport 13-Aug-1984

Again update \$BUADEF from even newer specs.

- V03-154 RLRBIDEFS2 Robert L. Rappaport 11-Aug-1984
Bring \$BIICDEF and \$BUADEF into line with latest spec.
- V03-153 KDM0106 Kathleen D. Morse 01-Aug-1984
Move ICCS back into the cpu-independent registers so that
11/730 and MicroVAX I dumps do not lose the bugcheck code,
when writing the EMB crash entry.
- V03-152 ROW0396 Ralph O. Weber 22-JUL-1984
Add CDRP\$V_DENSCK, a class driver flag used to signal that a
tape density check is required.
- V03-151 WMC151 Wayne Cardoza 19-Jul-1984
New quorum disk flag for write-locked.
- V03-150 WMC150 Wayne Cardoza 10-Jul-1984
Fix a typo.
- V03-149 ROW0378 Ralph O. Weber 6-JUL-1984
Add DYN\$C_CD_SHDW_WRK for the class driver shadow set work
buffer. Add CDDBS\$V_DAPBYS, a busy flag for the DAP CDRP, and
CDDBS\$V_2PBSY, a busy flag for failover fork block.
- V03-148 WMC148 Wayne Cardoza 27-Jun-1984
Add an error bit to CLUDCBDEF.
- V03-147 DWT0221 David W. Thiel 25-Jun-1984
Add CLUFCB\$V_WAITING bit to CLUFCB sub-block of CLUB.
- V03-146 ROW0356 Ralph O. Weber 1-MAY-1984
Add CDDBS\$V_QUORLOST to CDDBS\$W_STATUS. This bit will be used
to indicate that disk revalidation is occurring because
connection manager quorum has been lost.
- V03-145 KTA3124 Kerbey T. Altmann 11-Apr-1984
Add new DYN codes.
- V03-144 LMP0221 L. Mark Pilant, 7-Apr-1984 12:59
Remove the last vestiges of the old CHKPRO interface. The
definition of the CHIP block.
- V03-143 ROW0336 Ralph O. Weber 7-APR-1984
Remove CDDBS\$L_CONNQ[F/B]L. Add two more reserved longwords to
the CDDB definition. Add CDRP\$V_IVCMD to CDRP\$L_DUTUFLAGS.
- V03-142 KPL0001 Peter Lieberwirth 6-Apr-1984
Add several reserved longwords to the ADP to be used
to support volatile BI adapter information.
- V03-141 EMD0073 Ellen M. Dusseault 06-Apr-1984
Add new field, CDRP\$L_KEYDESC, corresponding to
in the IRP field for the address of a descriptor
describing an encryption key.

V03-140 DWT0209 David W. Thiel 06-Apr-1984
Add CLUBPWF substructure to CLUBDEF for use as a
fork block during power failures.
Add CLUB\$V_NO_FORM. Remove unused fields from
CLUB.

V03-139 RSH0124 R. Scott Hanna 25-Mar-1984
Replace \$CLUDCBDEF.

V03-138 SSA0021 Stan Amway 23-Mar-1984
Backed out DWT0198, since it is no longer necessary.

V03-137 DWT0198 David W. Thiel 22-Mar-1984
Length CLUB\$S_HANG_FKB to make it look more like
an IRP.

V03-136 SRB0117 Steve Beckhardt 22-Mar-1984
Added VAL9 and VAL10 to CDRP definitions.

V03-135 DWT0196 David W. Thiel 21-Mar-1984
Remove CDRPSL_BTIX, CDRPSK_PART_RESP, CSBST_SYSTEMID,
CSBSW_WAITCNT, CSBSV_QUORUM, CSBSV_TRANSITION,
CSBSV_QF_DYNVOTE, CSBSL_MSGS_SENT, CSBSL_MSGS_RCVD.
Add CLUB\$V_QF_NEWVOTE, CLUB\$Q_NEWQDVOTES.

V03-134 ACG0408 Andrew C. Goldstein, 21-Mar-1984 11:22
Add ARB\$C_HEADER

V03-133 LMP0214 L. Mark Pilant, 21-Mar-1984 10:02
Modify \$ARBDEF to remove the temporary SDL hack.
Add two new structures: \$CHPCTLDEF and CHPRETDEF. These are
used in the new interface to EXE\$CHKPRO_INT.

V03-132 RSH0121 R. Scott Hanna 21-Mar-1984
\$CLUBDEF / Remove the QF_WRITE flags bit. Rename the
QF_SKIP_READ flags bit to QF_FAILED_NODE.

V03-131 EMD0065 Ellen M. Dusseault 14-Mar-1984
Move the journal definition in \$DYNDEF to the sub-
type region where its subtypes are defined. Ensure
that the first subtype of a generic function has a
value of 1.

V03-130 JLV0340 Jake VanNoy 9-MAR-1984
Remove BRK\$Q_OLDPRIVS, add BRK\$T_DEVNAME.

V03-129 DWT0189 David W. Thiel 9-Mar-1984
Add CLUB\$L_RETRYCNT. Add CDRPSK_PART_MAP. Add
CSBSQ_REFTIME.

V03-128 LMP0206 L. Mark Pilant, 7-Mar-1984 11:53
Add additional flags to the CCB status to note that physical
and logical I/O access checks have been done.

V03-127 RLRBIDEFS1 Robert L. Rappaport 5-Mar-1984
Correct error in \$BUADEF and update \$BIICDEF.

- V03-126 CDS0002 Christian D. Saether 28-Feb-1984
Add AQB\$V_XQIOPROC, AQB\$L_BUFCACHE,
DYN\$C_PGD, DYN\$C_PGD_F11BC.
- V03-125 DWT0180 David W. Thiel 27-Feb-1984
Add CLUB\$V_SHUTDOWN, CLUB\$V_QF_DYNVOTE, CLUB\$T_QDNAME,
CLUB\$V_ADJ_QUORUM, CLUB\$W_ADJ_QUORUM,
CSB\$W_WAITCNT, CSB\$W_CURRCDRP, CSB\$V_SHUTDOWN,
CSB\$V_QF_DYNVOTE, CSB\$W_CNX_STS_R0, CSB\$W_CNX_STS_R1.
- V03-124 WHM0004 Bill Matthews 24-Feb-1984
Remove obsolete field ACF\$B_VECTOR.
- V03-123 SSA0010 Stan Amway 14-Feb-1984
Added DYN\$C_DCCB to module \$DYNDEF.
- V03-122 ROW0298 Ralph O. Weber 10-FEB-1984
Define CDRB\$W_ENDMSGISZ, a field in the class driver CDRP
extension which holds the size of the most recent MSCP end
message.
- V03-121 ROW0296 Ralph O. Weber 6-FEB-1984
Add CDDB\$V_RSTRTWAIT which when set indicates that a
connection is waiting to execute RESTART_NEXT_CDRP.
- V03-120 WHM0003 Bill Matthews 04-Feb-1984
Change field ACF\$B_COMBO_VECTOR to ACF\$B_VECTOR and added
field ACF\$B_COMBO_VECTOR_OFFSET to clean up support for
combo style devices.
- V03-119 LMP0185 L. Mark Pilant, 31-Jan-1984 11:02
Add CCB\$V_PROCHKDON to indicate that a protection check
has been completed on the channel (for sharable, non-mountable
devices).
- V03-118 ROW0289 Ralph O. Weber 25-JAN-1984
Add three DDT dispatch fields for various driver-specific
flavors of mount verification: DDT\$M_MNTV_SQD for sequential
device mount verification, DDT\$M_MNTV_FOR for foreign device
mount verification, and DDT\$M_MNTV_SSSC for shadow set state
change mount verification.
- V03-117 ROW0280 Ralph O. Weber 14-JAN-1984
Rearrange bits in CDRP\$M_DUTUFLAGS so that CDRP\$M_CAND is the
low-order bit. This provides for the fastest possible testing
of the bit, which must be tested on every trip through the
mainline code path of the disk class driver. Add CDRP\$M_PERM
and CDRP\$M_HIRT to CDRP\$M_DUTUFLAGS. Add CDDB\$M_NOCONN to
CDDB\$W_STATUS. Add CDDB\$W_WTUCBCTR, a counter of the number
of UCBS waiting for mount verification to complete before
single stream CDRP processing can begin.
- V03-116 WHM0002 Bill Matthews 12-Jan-1984
Moved \$ACFDEF back into this module since it can be
referenced by drivers.

V03-115 DWT0160 David W. Thiel 11-Jan-1984
Rename CSBSQ_TIMEOUT to CSBSL_TIMEOUT. Remove
CSBSL_SPARE% fields.

V03-114 RSH0090 R. Scott Hanna 11-Jan-1984
Add QF_CSP bit to FLAGS longword in \$CLUDCBDEF.

V03-113 ACG0385 Andrew C. Goldstein, 9-Jan-1984 17:04
Add \$ALFDEF - auto-login file definitions

V03-112 ROW0275 Ralph O. Weber 7-JAN-1984
Add CDRPSK_PART_RESP, block transfer partner responding,
to connection manager extension in \$CDRPDEF. Add
CDRPSL_DUTUFLAGS and CDRPSW_DUTUCNTR to class driver
extension in \$CDRPDEF.

V03-111 SSA0004 Stan Amway 29-Dec-1983
Added DYN\$C_PMB and DYN\$C_PFB to module \$DYNDEF.

V03-110 WHM001 Bill Matthews 14-Dec-1983 14:12
Moved \$ACFDEF to BOOTDEF.SDL

V03-109 LY0440 Larry Yetto 7-DEC-1983 16:12
Add DYN\$C_JNL_DIOREAD

V03-018 LMP0177 L. Mark Pilant, 7-Dec-1983 10:06
Reduce the size of the local rights list in the ARB.
Also, move \$ACLDEF to STARDEFAE.SDL.

V03-107 ACG0376 Andrew C. Goldstein, 5-Dec-1983 13:14
Restructure CIA block for breakin detection changes

V03-106 ROW0263 Ralph O. Weber 24-NOV-1983
Add DDB\$S_2P_UCB which is equivalent to DDB\$S_DP_UCB. Add
CDDBSV_ALCLS_SET bit which provides a mechanism for limiting
the determination of allocation class for class driver devices
to once.

V03-105 DWT0151 David W. Thiel 17-Nov-1983
Replace CLUB\$W_NEWMEMSEQ with CLUB\$W_QDVOTES.
Add CSBSW_QDVOTES.

V03-104 SOP0001 J. R. Sopka 11-Nov-1983
Change definition of DDB\$T_NAME and DDB\$T_DRVNAME fields
of \$DDBDEF to produce DDB\$S_NAME and DDB\$S_DRVNAME symbols
and *_LEN and *_STR symbols for referencing subfields of
these counted ASCII strings.

V03-103 DWT0146 David W. Thiel 11-Nov-1983
\$CSBDEF - Add CSBSW_LCKDIRWT to support distribution of
lock manager directory over a cluster.
\$CLUBDEF - Add CLUB\$W_MEMSEQ and CLUB\$W_NEWMEMSEQ to
provide sequence number for cluster membership
transitions.
\$DYNDEF - Add DYN\$C_CLU_LCKDIR to identify lock

manager directory vector.

V03-102 RSH0077 R. Scott Hanna 10-Nov-1983
\$CLUDCBDEF - Change BUFO and BUF1 sizes. Add FLAGS longword.
\$CLUBDEF - Remove QF TRANS and QF TIMEOUT FLAGS bits. (Moved
to \$CLUDCBDEF). Add FMERIT longword.

V03-101 RLRBIDEFS Robert L. Rappaport 09-Nov-1983
Add \$BUADEF, \$BIMEMDEF and \$BIICDEF.

V03-100 DWT0142 David W. Thiel 07-Nov-1983
Define \$CLUOPTDEF structure for maintaining the
context needed to perform optimal cluster reconfigurations.

V03-099 DWT0135 David W. Thiel 05-Oct-1983
Add CLUB\$V_LOST_CNX bit to \$CLUBDEF to more finely
sort out states during cluster failover.

V03-098 KDM0083 Kathleen D. Morse 20-Sep-1983
Fix offsets in \$EMBCRDEF, which were incorrect due to
moving 4 IPRs from the cpu-independent area to the cpu-
dependent area.

V03-097 KDM0082 Kathleen D. Morse 20-Sep-1983
Add BTB symbols for QNA and PROM for Micro-VAX booting.

V03-096 DWT0130 David W. Thiel 15-Sep-1983
Add CLUB\$V_RECONFIG and CLUB\$V_LOSTMSG bits to the
CLUB\$L_FLAGS field in \$CLUBDEF. Add CLUB\$B_HANG_FKB
field to \$CLUBDEF.

V03-095 ACG0354 Andrew C. Goldstein, 9-Sep-1983 19:11
Remove unused fields from CHIP\$ block, rearrange
for more efficient access

V03-094 ROW0215 Ralph O. Weber 25-AUG-1983
Add CDDBSB_FOVER_CTR and some reserved fields to the CDDB.
Also correct comments on CDDBSW_RSTRCNT.

V03-093 RSH0056 R. Scott Hanna 23-Aug-1983
Add \$CLUDCBDEF. Add DYN\$C_CLU_CLUDCB to \$DYNDEF.

V03-092 KDM0073 Kathleen D. Morse 22-Aug-1983
Add BQO\$L_UMR_TMPL, BQO\$B_UMR_DP, BQO\$B_CPUTYPE, BQO\$L_CPUDATA,
BQO\$L_TENDESEC, and BQO\$L_OBDECAY.

V03-091 GAS0168 Gerry Smith 22-Aug-1983
Add definitions for the Compound Intrusion Analysis block,
as well as DYN\$C_CIA, to identify the block type.

V03-090 DWT0120 David W. Thiel 19-Aug-1983
Improve use of SDL in \$CLUBDEF and \$CSBDEF. Add \$CLUBFKB
subblock and other fields to \$CLUBDEF.

V03-089 LMP0136 L. Mark Pilant, 9-Aug-1983 13:15
Correctly align the protection fields in \$CHIPDEF.

V03-088 CDS0001 Christian D. Saether 2-Aug-1983
Remove type definition for obsolete RVX structure.

V03-087 LY0404 Larry Yetto 2-AUG-1983 14:42:03
Add DYN\$C_JNL_MSGDATA

V03-086 DWT0115 David W. Thiel 1-Aug-1983
Add CLUB\$V_BACKOUT bit to \$CLUBDEF.

V03-085 BLS0231 Benn Schreiber 31-Jul-1983
Correct EMBCR definition

V03-084 DWT0113 David W. Thiel 29-Jul-1983
Add quorum disk support to CLUB and CSB. Add
CLUB\$V_INIT bit to CLUB to synchronize with SYSINIT.

V03-083 MLJ0115 Martin L. Jack 29-Jul-1983
Add DJISK_FILE_SPECIFICATION.

V03-082 LY0402 Larry Yetto 29-JUL-1983 14:27:42
Add DYN\$C_JNL_BXSTS

V03-081 PRB0229 Paul Beck 29-JUL-1983 13:40
Add CLUB\$L_CSPFL, CLUB\$L_CSPBL, CLUB\$L_CSPID.

V03-080 NPK3029 N. Kronenberg 29-Jul-1983
Add performance counters to \$CDTDEF.

V03-079 KDM0062 Kathleen D. Morse 28-Jul-1983
Move ICCS, ICR, ACCS, and TODR to cpu-dependent registers
in \$EMBCRDEF.

V03-078 JLV0276 Jake VanNoy 27-JUL-1983
Change CRB\$x_TT symbols to CRB\$x_DZ.

V03-077 RLREMB Robert L. Rappaport 27-Jul-1983
Add EMB\$C_INVSTS, EMB\$C_INVATT, EMB\$C_NOUNIT_DG, and
EMB\$C_LOGMSCP.

V03-076 JSV0366 Joost Verhofstad 27-JUL-1983
Add DYN\$C_JNL_MSG

V03-075 LY0395 Larry Yetto 25-JUL-1983 13:42:30
Add DYN\$C_JNLWCB and CLUB\$L_JNL_FAIL

V03-074 RNG0074 Rod Gamache 25-Jul-1983
Add CXB\$Q_STATION overlay to \$CXBDEF.

V03-073 JLV0275 Jake VanNoy 25-JUL-1983
Add \$BRKTDEF, used by \$BRKTHRU and cluster broadcast module.
Remove obsolete \$BRDDEF.

V03-072 LMP0125 L. Mark Pilant, 26-Jun-1983 21:35
Twiddle the \$CHIPDEF structure definition to make the
symbol CHIP\$L_PROTECTION available in MACRO.

V03-071 DWT0107 David W. Thiel 23-Jun-1983
Correct previous entry. Remove the CLUB\$W_LOCKCNT
field and add the CLUB\$L_TQE field to \$CLUBDEF.

V03-070 RPG0069 Bob Grosso 23-Jun-1983
Add structure type codes for new Known file structures
and remove KFI and KFH from DYNDEF.

V03-069 RLRCDDDB1 Robert L. Rappaport 23-Jun-1983
Added CDDBSB_DAPCOUNT.

V03-068 KTA060 Kerbey T. Altmann 23-Jun-1983
Added BQO\$L_UNIT_DISC and BQO\$L_DEVNAME.

V03-067 ADE0001 Alan D. Eldridge 22-Jun-1983
Added CXBS\$L_END_ACTION, CXBS\$W_BOFF, CXBS\$W_BCNT.
Removed CXBS\$W_UQUO, CXBS\$W_JQUO, CXBS\$B_ASTCNT CXBS\$L_SSB and
CXBS\$L_ENDACTION.

V03-066 ROW0185 Ralph O. Weber 21-JUN-1983
Delete CSBS\$L_SELQFL and CSBS\$L_SELQBL and replace that queue
header with CSBS\$L_PARTNERQFL and CSBS\$L_PARTNERQBL, the queue
header for the queue of active block-transfer partner BTX
blocks. Add block transfer fields to the connection manager
CDRP extension. Add NO_JOIN bit in CLUB.

V03-065 RLRCDDDB Robert L. Rappaport 17-Jun-1983
Add CDDBS\$L_DAPCDRP and CDDBS\$L_CDDBLINK.

V03-064 LMP0120 L. Mark Pilant, 16-Jun-1983 10:11
Add subfields to the protection vector in the CHIP
block.

V03-063 MKL0095 Mary Kay Lyons 01-Jun-1983
Add DYN\$C_JNL_RC subtype field for read context structure.

V03-062 DWT0102 David W. Thiel 27-May-1983
Add CLUFCB sub-block and CLUB\$L_LOCAL_CSID to \$CLUBDEF.

V03-061 RLRALOCLS Robert L. Rappaport 26-May-1983
Add CDDBS\$L_ALLOCLS.

V03-060 RLRLDPATH Robert L. Rappaport 25-May-1983
Add DDB\$L_DP_UCB, secondary UCB link for dual path
controllers.

V03-059 LY0376 Larry Yetto 24-MAY-1983 16:31:35
Add DYN\$C_JNL_CWQ subtype field for journal cluster write Q
entry.

V03-058 DWT0100 David W. Thiel 23-May-1983
Revise \$CLUBDEF and \$CSBDEF to support N node clusters.

V03-057 JSV0294 Joost Verhofstad 20-MAY-1983
Add DYN\$ subtype values for journaling, add DYN\$C_JNL

and remove other journaling DYN\$ type values

V03-056 KDM0044 Kathleen D. Morse 3-May-1983
Change EXESGL_ARCHFLAGS to EXESGL_ARCHFLAG.
Also, add new sub-types for loadable instruction emulation code.

V03-55 EAD0055 Elliott A. Drayton 1-May-1983
Removed one of two lines which defined CLU_CLUB in \$DYNDDEF.

V03-54 DWT0097 David W. Thiel 29-Apr-1983
Add pointer to system block to \$CSBDEF.

V03-53 KDM0043 Kathleen D. Morse 29-Apr-1983
Add \$ARCDEF, architectural bit field definitions for
EXESGL_ARCHFLAGS.

V03-052 LMP0109 L. Mark Pilant, 29-Apr-1983 12:47
Add item to \$CHIPDEF for returning the access rights mask.

V03-051 JLV0246 Jake VanNoy 29-APR-1983
Move \$BRKDEF to STARLET.

V03-050 TCM0005 Trudy C. Matthews 28-Apr-1983
Add new field to \$DDBDEF, \$DBSL_ALLOCLS.

V03-049 SRB0082 Steve Beckhardt 28-Apr-1983
Removed message queue from \$CDRPDEF

V03-048 GAS0128 Gerry Smith 28-Apr-1983
Add a new type for \$DYNDDEF, DYN\$C_RIGHTSLIST.

V03-047 MLJ0112 Martin L. Jack, 27-Apr-1983 16:48
Add \$DJIDEF.

V03-046 ROW0185 Ralph O. Weber 24-APR-1983
Add CLU subtype for the block transfer extension, BTX.

V03-45 LMP0095 L. Mark Pilant, 14-Apr-1983 16:19
Add a hack definition in \$CHIPDEF until the new SDL comes along.

V03-044 ROW0181 Ralph O. Weber 14-APR-1983
Add CDRPSL_VAL7 and CDRPSL_VAL8. Eventually, these fields
should replace currently used fields. However, the current
fields cannot be deleted yet. Therefore, the CDRP and the
IRP will be bigger than we want for a few weeks.

V03-043 MMD0143 Meg Dumont, 14-Apr-1983 9:15
Add \$EO4DEF, EOF4 definitions.

V03-42 LMP0099 L. Mark Pilant, 14-Apr-1983 8:32
Add return length addr storage to \$CHIPDEF.

V03-041 DWT0094 David W. Thiel 12-Apr-1983
More miscellaneous \$CLUBDEF and \$CSBDEF changes.

V03-040 TCM0004 Trudy C. Matthews 12-Apr-1983

Add error log types EMBSC_EMM (Environmental Monitor logs), EMBSC_HLT (processor error halt logs), and EMBSC_CRBT (console reboot logs) to SEMBETDEF.

V03-039 LY0350 Larry Yetto 11-APR-1983 07:48:25
Remove DYN\$C_NTE and replace it with DYN\$C_JNLCB

V03-038 DWT0092 David W. Thiel 6-Apr-1983
Add fields to \$CSBDEF and \$CLUBDEF

V03-037 DWT0088 David W. Thiel 29-Mar-1983
Add fields to \$CSBDEF and \$CLUBDEF.

V03-036 JWH0204 Jeffrey W. Horn 24-Mar-1983
Add DYN\$C_NON_PAGED and DYN\$C_PAGED as subtypes of DYN\$C_LOADCODE.

V03-035 LMP0086 L. Mark Pilant, 11-Mar-1983 9:25
Longword align the \$CHIPDEF structure.

V03-034 DWT0084 David W. Thiel 10-Mar-1983
Add \$CLUBDEF to define cluster block.

V03-033 LMP0084 L. Mark Pilant, 1-Mar-1983 16:05
Add \$CHIPDEF, the internal interface definition to the \$CHKPRO system service.

V03-032 JLV0235 Jake VanNoy 1-MAR-1983
Add \$BRKDEF, for \$BRKTHRU system service.

V03-031 RLRDDBB Robert L. Rappaport 1-Mar-1983
Also added CDDBSL_ORIGUCB, pointer to UCB created by SYSGEN.

V03-030 RLRDDBA Robert L. Rappaport 1-Mar-1983
Also added CDDBSL_UCBCHAIN to link all UCB's on a connection into a chain.

V03-029 RLRDDBB Robert L. Rappaport 1-Mar-1983
Add DDBSL_CONLINK, (Connection Link) to allow linking of all DDB's that service one Disk or Tape Class Connection.

V03-028 JLV0232 Jake VanNoy 24-FEB-1983
Add CCB\$V_IMGTMP flag to allow an image temporary, kernel mode channel.

V03-027 ROW0162 Ralph O. Weber 23-FEB-1983
Add CANCEL type for associated mailbox. This will be used when the a mailbox driver's cancel I/O routine is called as the result of a channel deassign which disassociates a mailbox causing the mailbox reference count to go to zero. In this case the mailbox is about to be deleted and the driver is required to cleanup preparatory to that event.

V03-026 DWT0076 David W. Thiel 22-Feb-1983
Add DYN\$C_CLU as the major type for all cluster related control blocks. Make CSB to be a subtype.

Add fields to \$CSBDEF.
Add DYN\$C_SCS_SPNB to \$DYNDEF.

V03-025 DWT0075 David W. Thiel 11-Feb-1983
Correct previous entry. Add fields to \$CSBDEF.

V03-024 DWT0066 David W. Thiel 20-Jan-1983
Add DYN\$C_SCS_SPPB control block subtype.

V03-023 MIR0022 Michael I. Rosenblum 19-Jan-1983
Move TTDRIVER local CRB and IDB definitions into
the main definitions.

V03-022 ROW0156 Ralph O. Weber 12-JAN-1983
Remove hard coded filler offsets in IRP to be symbolic.
Reorder connection manager extension to CDRP so that the VAL1
through VAL6 fields overlay the fields in the block transfer
CDRP extension. Add DYN\$C_NTE for journaling memory-format
name table entries which will be produced on slave nodes.

V03-021 SRB0060 Steve Beckhardt 7-Jan-1983
Added some new data structure definitions in \$DYNDEF.
Added \$CSBDEF (Cluster System Blocks). Added connection
manager extension to \$CDRPDEF.

V03-020 WMC0020 Wayne Cardoza 05-JAN-1982
New machine check error codes in EMBETDEF.

V03-019 KTA3026 Kerbey T. Altmann 03-Jan-1983
Add GETDONE flag to \$ACFDEF.

V03-018 ACG0307 Andrew C. Goldstein, 30-Dec-1982 17:11
Add rights list to ARB

V03-017 ACG0303 Andrew C. Goldstein, 9-Dec-1982 15:11
Add FILL attribute to extraneous field names

V03-016 DMW4015 DMWalp 9-Dec-1982
Added DYN structure type for LNM blocks

V03-015 MLJ0101 Martin L. Jack, 17-Nov-1982 13:56
Fix AVECTOR definition.

V03-014 KTA3019 Kerbey T. Altmann 08-Nov-1982
Add new field to DDB for system block address.

V03-013 TCM0003 Trudy C. Matthews 29-Oct-1982
Move definition of ADP\$A_AVECTOR (see TCM0002) into
common portion of ADP structure. Add \$CONDEF, which
defines console function codes.

V03-012 RLRPOLL Robert L. Rappaport 8-Oct-1982
Add CDDBSM_POLLING bit to CDDBSW_STATUS.

V03-011 ROW0131 Ralph O. Weber 7-OCT-1982
Increment DPT\$C_VERSION to indicate significant change in

driver data structures. This will cause SYSGEN to abort, with an error message, attempts to load V3.x drivers on post X1NR systems and vice versa.

V03-010 ROW0125 Ralph O. Weber 19-SEP-1982
Add DDT\$CLONEDUCB to driver entry points listed in \$DDTDEF,
the offset definitions for the driver dispatch table.

V03-009 TCM0002 Trudy C. Matthews 10-Aug-1982
Add new field ADP\$AVECTOR, the address of the 1st SCB
vector for this adaptor, to \$ADPDEF

V03-008 LMP0036 L. Mark Pilant, 29-Jun-1982 13:00
Add the Access Control List (ACL) data structure. Also,
add the DYN\$C_ACL data structure type code.

V03-007 LY0026 Larry Yetto 29-Jun-1982
Add DYN\$C_NDL to data structure type definitions

V03-006 TMH0006 Tim Halvorsen 14-Jun-1982
Add WQE and XWB structure codes for DECnet.

V03-005 JSV007 Joost Verhofstad 10-Jun-1982
Add DYN\$C_ADL, DYN\$C_JNL_BUF, DYN\$C_VCL

V03-004 RLRV3A3 Robert L. Rappaport 15-Apr-1982
Add EMB\$C_ACPH to log Attention messages.

V03-003 RLRV3A2 Robert L. Rappaport 6-Apr-1982
Add EMB\$C_AVATN, EMB\$C_DUPUN so as to log Attention
messages from MSCP controllers. Also add EMB\$C_IVCMD.

V03-002 KTA0090 Kerbey T. Altmann 29-Mar-1982
Add new field to BOOT QIO vector for microcode address.

V03-001 RLRV3A1 Robert L. Rappaport 23-Mar-1982
Add two state bits to CDDB definition and add field
to EMB\$PDEF (Error Log Software Parameter block).

(**


```
module $ACMDEF;
```

```
/*+
/* ACMDEF - ACCOUNTING MANAGER DEFINITIONS
/*-
```

```
aggregate ACMDEF union prefix ACMS;
```

```
ACMDEF_BITS structure fill;
```

```
PROCESS bitfield;
```

```
IMAGE bitfield;
```

```
INTERACTIVE bitfield;
```

```
LOGFAIL bitfield;
```

```
SUBPROCESS bitfield;
```

```
DETACHED bitfield;
```

```
BATCH bitfield;
```

```
NETWORK bitfield;
```

```
PRINT bitfield;
```

```
USER_DATA bitfield;
```

```
ACM_FUNC bitfield;
```

```
SYS_FUNC bitfield;
```

```
end ACMDEF_BITS;
```

```
end ACMDEF;
```

```
aggregate ACMDEF1 structure prefix ACMS origin TYPE;
```

```
MSGSTS word unsigned;
```

```
MSGLEN word unsigned;
```

```
PROCID longword unsigned;
```

```
TYPE word unsigned;
```

```
MAILBOX word unsigned;
```

```
PRVMSK quadword unsigned;
```

```
UIC_OVERLAY union fill;
```

```
UIC longword unsigned;
```

```
UIC_FIELDS structure fill;
```

```
MEM word unsigned;
```

```
GRP word unsigned;
```

```
end UIC_FIELDS;
```

```
end UIC_OVERLAY;
```

```
USERNAME character length 12;
```

```
ACCOUNT character length 8;
```

```
PROCPRI byte unsigned;
```

```
FILL_1 byte dimension 3 fill prefix ACMDEF tag $$;
```

```
PID longword unsigned;
```

```
STS longword unsigned;
```

```
OWNER longword unsigned;
```

```
TERMINAL character length 8;
```

```
SYSTIME quadword unsigned;
```

```
/*
```

```
/* SEND TO ACCOUNTING MANAGER FIELDS
```

```
/*
```

```
end ACMDEF1;
```

```
aggregate ACMDEF2 structure prefix ACMS;
```

```
FILL_2 byte dimension 68 fill prefix ACMDEF tag $$;
```

```
USERREQ word unsigned;
```

```
/* PROCESS ACCOUNTING ENABLED
```

```
/* IMAGE ACCOUNTING ENABLED
```

```
/* INTERACTIVE ACCOUNTING ENABLED
```

```
/* LOGIN FAILURE ACCOUNTING ENABLED
```

```
/* SUBPROCESS ACCOUNTING ENABLED
```

```
/* DETACHED PROCESS ACCOUNTING ENABLED
```

```
/* BATCH ACCOUNTING ENABLED
```

```
/* NETWORK PROCESS ACCOUNTING ENABLED
```

```
/* PRINT JOB ACCOUNTING ENABLED
```

```
/* USER DATA ACCOUNTING ENABLED
```

```
/* ACM FUNCTION ACCOUNTING ENABLED
```

```
/* SYSTEM FUNCTION ACCOUNTING ENABLED
```

```
/* MSG STATUS IN MAILBOX IOSB (JOBCTL SPECIFIC)
```

```
/* MSG LENGTH IN MAILBOX IOSB (JOBCTL SPECIFIC)
```

```
/* PROCESS ID IN MAILBOX IOSB (JOBCTL SPECIFIC)
```

```
/* MESSAGE TYPE
```

```
/* MAILBOX UNIT NUMBER
```

```
/* PROCESS PRIV MASK
```

```
/* PROCESS UIC
```

```
/* MEMBER UIC
```

```
/* GROUP UIC
```

```
/* USERNAME
```

```
/* ACCOUNT NAME
```

```
/* PROCESS BASE PRIORITY
```

```
/* SPARE BYTES (LONGWORD ALIGNMENT)
```

```
/* PROCESS ID
```

```
/* PROCESS STATUS
```

```
/* OWNER PROCESS ID (0 => NONE)
```

```
/* TERMINAL NAME (COUNTED ASCII STRING)
```

```
/* CURRENT SYSTEM TIME
```

```
/* USER REQUEST TYPE
```



```
DATA character length 256;
/*
/* PROCESS/IMAGE DELETE/PURGE FIELDS
/*
end ACMDEF2;

aggregate ACMDEF3 structure prefix ACMS;
  FILL 3 byte dimension 68 fill prefix ACMDEF tag $$;
  LOGIN quadword unsigned;
  FINALSTS longword unsigned;
  IMGCNT longword unsigned;
  CPUTIME longword unsigned;
  PAGEFLTS longword unsigned;
  PGFLTIO longword unsigned;
  WSPEAK longword unsigned;
  PGFLPEAK longword unsigned;
  DIOCNT longword unsigned;
  BIOCNT longword unsigned;
  VOLUMES longword unsigned;
  NODEADDR word unsigned;
  NODENAME word unsigned;
  REMOTEID word unsigned;
  IMAGENAME word unsigned;
  constant PROCLN equals . prefix ACMS tag K;
  constant PROCLN equals . prefix ACMS tag C;
end ACMDEF3;

end_module $ACMDEF;

/* USER DATA
/* PROCESS/IMAGE START TIME
/* PROCESS FINAL STATUS
/* IMAGE EXECUTION COUNT
/* CPU USAGE
/* PAGEFAULT COUNT
/* PAGEFAULT I/O
/* WORKING SET PEAK
/* PAGE FILE PEAK
/* DIRECT I/O COUNT
/* BUFFERED I/O COUNT
/* VOLUME MOUNT COUNT
/* MESSAGE OFFSET TO REMOTE NODE ADDRESS
/* MESSAGE OFFSET TO REMOTE NODE NAME
/* MESSAGE OFFSET TO REMOTE ID
/* MESSAGE OFFSET TO IMAGE NAME
/* MIN. PROCESS/IMAGE TERMINATION MESSAGE LENGTH
/* MIN. PROCESS/IMAGE TERMINATION MESSAGE LENGTH
```



```
module $ACBDEF;
/**
/* AST CONTROL BLOCK DEFINITIONS
/*
/* AST CONTROL BLOCKS EXIST AS SEPARATE STRUCTURES AND AS SUBSTRUCTURES
/* WITHIN LARGER CONTROL BLOCKS SUCH AS I/O REQUEST PACKETS AND TIMER
/* QUEUE ENTRIES.
/*
/*-

aggregate ACBDEF structure prefix ACBS;
  ASTQFL longword unsigned;          /*AST QUEUE FORWARD LINK
  ASTQBL longword unsigned;          /*AST QUEUE BACKWARD LINK
  SIZE word unsigned;                /*STRUCTURE SIZE IN BYTES
  TYPE byte unsigned;                /*STRUCTURE TYPE CODE
  RMOD OVERLAY union fill;
    RMOD byte unsigned;              /*REQUEST ACCESS MODE
    RMOD BITS structure fill;
      MODE bitfield length 2;         /*MODE FOR FINAL DELIVERY
      FILL 1 bitfield length 2 fill prefix ACBDEF tag $$; /*SPARE
      PKAST bitfield mask;            /*PIGGY BACK SPECIAL KERNEL AST
      NODELETE bitfield mask;         /*DON'T DELETE ACB ON DELIVERY
      QUOTA bitfield mask;            /*ACCOUNT FOR QUOTA
      KAST bitfield mask;             /*SPECIAL KERNEL AST
    end RMOD BITS;
  end RMOD_OVERLAY;
  PID longword unsigned;              /*PROCESS ID OF REQUEST
  AST longword unsigned;              /*AST ROUTINE ADDRESS
  ASTPRM longword unsigned;           /*AST PARAMETER
  KAST longword unsigned;             /*INTERNAL KERNEL MODE XFER ADDRESS
  constant "LENGTH" equals . prefix ACBS tag K; /* Length of block.
  constant "LENGTH" equals . prefix ACBS tag C; /* Length of block.

end ACBDEF;

end_module $ACBDEF;
```

```
module $ACFDEF;
```

```
/*  
/* CONFIGURATION CONTROL BLOCK OFFSET DEFINITIONS  
/*
```

```
aggregate ACFDEF structure prefix ACF$;
```

```
ADAPTER longword unsigned;  
CONFIGREG longword unsigned;  
AVECTOR word unsigned;  
AUNIT byte unsigned;  
AFLAG_OVERLAY union fill;  
    AFLAG byte unsigned;  
    AFLAG_BITS structure fill;  
        RELOAD bitfield mask;  
        CRBBLT bitfield mask;  
        SCBVEC bitfield mask;  
        NOLOAD_DB bitfield mask;  
        SUPPORT bitfield mask;  
        GETDONE bitfield mask;
```

```
    end AFLAG_BITS;
```

```
end AFLAG_OVERLAY;
```

```
CONTRLREG longword unsigned;
```

```
CVECTOR word unsigned;
```

```
CUNIT word unsigned;
```

```
DEVNAME longword unsigned;
```

```
DRVNAME longword unsigned;
```

```
MAXUNITS word unsigned;
```

```
CNUMVEC byte unsigned;
```

```
COMBO_VECTOR_OFFSET byte;
```

```
COMBO_CSR_OFFSET byte;
```

```
NUMUNIT byte unsigned;
```

```
FILL_1 word fill prefix ACFDEF tag $$;
```

```
DLVR_SCRH longword unsigned;
```

```
constant 'LENGTH' equals . prefix ACF$ tag K;
```

```
constant 'LENGTH' equals . prefix ACF$ tag C;
```

```
end ACFDEF;
```

```
end_module $ACFDEF;
```

```
/*ADDRESS OF ADAPTER CONTROL BLOCK  
/*ADDRESS OF CONFIGURATION STATUS REGISTER  
/*OFFSET TO ADAPTER INTERRUPT VECTOR (SCB)  
/*ADAPTER UNIT NUMBER
```

```
/*ADAPTER GENERATION CONTROL FLAGS
```

```
/* RELOAD DRIVER
```

```
/* CRB AND IDB ARE BUILT
```

```
/* CVECTOR IS OFFSET INTO SCB
```

```
/* DON'T LOAD DATABASE, ONLY LOAD DRIVER
```

```
/* DEVICE IS SUPPORTED
```

```
/* GET OF IO DATABASE ALREADY DONE
```

```
/*ADDRESS OF CONTROL REGISTER
```

```
/*OFFSET TO CONTROLLER INTERRUPT VECTOR (TABLE)
```

```
/*CONTROLLER UNIT NUMBER
```

```
/*ADDRESS OF DEVICE NAME COUNTED STRING
```

```
/*ADDRESS OF DRIVER NAME COUNTED STRING
```

```
/*MAXIMUM UNITS THAT CAN BE CONNECTED
```

```
/*NUMBER OF CONTROLLER VECTORS
```

```
/*OFFSET TO START OF VECTORS FOR A COMBO STYLE DEVICE
```

```
/*OFFSET TO START OF CONTROL REGISTERS FOR A COMBO DEVICE
```

```
/*NUMBER OF UNITS TO CONFIGURE
```

```
/*(SPARE)
```

```
/*SCRATCH FOR DELIVER ROUTINES
```

```
/*LENGTH OF DEVICE DESCRIPTOR ARGUMENT LIST
```

```
/*LENGTH OF DEVICE DESCRIPTOR ARGUMENT LIST
```



```
module $ADPDEF;
```

```
/**
/* ADAPTER CONTROL BLOCK DEFINITIONS
/*
/* THERE IS ONE ADP FOR EACH SYSTEM INTERCONNECT ADAPTER THAT IS
/* USED FOR ANY TYPE OF I/O. FOR EXAMPLE: MASSBUS ADAPTER, UNIBUS
/* ADAPTER. THERE IS NO ADAPTER CONTROL BLOCK FOR MAIN MEMORY ADAPTERS.
/*-
```

```
aggregate ADPDEF structure prefix ADP$;
```

```
  CSR longword unsigned;
  LINK longword unsigned;
  SIZE word unsigned;
  TYPE byte unsigned;
  NUMBER byte unsigned;
  TR word unsigned;
  ADPTYPE word unsigned;
  VECTOR OVERLAY union fill;
    VECTOR longword unsigned;
    CRB longword unsigned;
  end VECTOR OVERLAY;
  DPQFL OVERLAY union fill;
    DPQFL longword unsigned;
    PRQFL OVERLAY union fill;
      PRQFL longword unsigned;
      MBASCB longword unsigned;
    end PRQFL OVERLAY;
  end DPQFL OVERLAY;
  DPQBL OVERLAY union fill;
    DPQBL longword unsigned;
    PRQBL OVERLAY union fill;
      PRQBL longword unsigned;
      MBASPT longword unsigned;
    end PRQBL OVERLAY;
  end DPQBL OVERLAY;
  AVECTOR longword unsigned;
  BI_ONLY longword unsigned dimension 4;
  constant MBAADPLEN equals . prefix ADP$ tag K;
  constant MBAADPLEN equals . prefix ADP$ tag C;
  constant DRADPLEN equals . prefix ADP$ tag K;
  constant DRADPLEN equals . prefix ADP$ tag C;
  constant CIADPLEN equals . prefix ADP$ tag K;
  constant CIADPLEN equals . prefix ADP$ tag C;
  MRQFL OVERLAY union fill;
    MRQFL longword unsigned;
    SHB longword unsigned;
  end MRQFL OVERLAY;
  MRQBL OVERLAY union fill;
    MRQBL longword unsigned;
    PORT byte unsigned;
  end MRQBL OVERLAY;
  INTD longword unsigned dimension 3;
  constant MPMADPLEN equals . prefix ADP$ tag K;
```

```
/*ADAPTER CONFIGURATION STATUS REGISTER ADDRESS
/*ADDRESS OF NEXT ADAPTER CONTROL BLOCK
/*STRUCTURE SIZE IN BYTES
/*STRUCTURE TYPE CODE
/*ORDINAL ADAPTER NUMBER
/*CONFIGURATION TR NUMBER
/*SOFTWARE ADAPTER TYPE
```

```
/*UBA - ADDRESS OF VECTOR JUMP TABLE
/*MBA OR DR32 - ADDRESS OF ADAPTER'S CRB
```

```
/*UBA - DATAPATH WAIT QUEUE FORWARD LINK
```

```
/*MPM - INTER-PROCESSOR REQUEST WAIT QUEUE FLINK
/*MBA - SCB VECTOR VALUE FOR MBA NEXUS
```

```
/*UBA - DATAPATH WAIT QUEUE BACKWARD LINK
```

```
/*MPM - INTER-PROCESSOR REQUEST WAIT QUEUE BLINK
/*MBA - SPTD VALUE WHICH MAPS MBA ADDRESS SPACE
```

```
/* ADDR OF 1ST SCB VECTOR FOR THIS ADAPTOR
/*BI ADAPTER VOLATILE INFO
/*LENGTH OF ADP FOR MASSBUS ADAPTER
/*LENGTH OF ADP FOR MASSBUS ADAPTER
/*LENGTH OF ADP FOR DR32
/*LENGTH OF ADP FOR DR32
/*LENGTH OF ADP FOR CI
/*LENGTH OF ADP FOR CI
/*LENGTH OF ADP FOR CI
```

```
/*UBA - MAP REGISTER WAIT QUEUE FORWARD LINK
/*MPM - SHARED MEMORY CONTROL BLOCK ADDR
```

```
/*UBA - MAP REGISTER WAIT QUEUE BACKWARD LINK
/*MPM - PORT NUMBER
```

```
/*UBA - INTERRUPT TRANSFER VECTOR
/*LENGTH OF ADP FOR MULTI-PORT MEMORY
```

```
constant MPMADPLEN equals . prefix ADP$ tag C;  
UBASCB longword unsigned dimension 4;  
UBASPTC longword unsigned dimension 2;  
MRACMDRS longword unsigned;  
DPBITMAP word unsigned;  
MRNFENCE word unsigned;  
MRNREGARY word unsigned dimension 124;  
MRFFENCE word unsigned;  
MRFREGARY word unsigned dimension 124;  
UMR_DIS word unsigned;
```

```
constant UBAADPLEN equals . prefix ADP$ tag K;  
constant UBAADPLEN equals . prefix ADP$ tag C;  
constant NUMDATAP equals 16 prefix ADP tag SC;
```

```
end ADPDEF;
```

```
end_module $ADPDEF;
```

```
/*LENGTH OF ADP FOR MULTI-PORT MEMORY  
/*UBA - SCB VECTOR VALUE FOR 4 UBA VECTORS  
/*UBA - SPTE VALUES FOR MAPPING UBA ADDRESSES  
/* UBA - ! active map register descriptors  
/* UBA - Datapath Allocation Bitmap  
/* Fence preceeding array. Init'ed to -1  
/* ! map regs in an extent array  
/* Fence preceeding array. Init'ed to -1  
/* 1st reg in extent array.  
/* Num of Map Registers to disable  
/* NOTE** - UNIBUS ADP must be integral  
/* number of longwords long so that 780  
/* interrupt vectors are longword aligned.  
/*LENGTH OF ADP FOR UNIBUS ADAPTER  
/*LENGTH OF ADP FOR UNIBUS ADAPTER  
/*UBA - NUMBER OF DATAPATHS
```



```
module $AIBDEF;
```

```
/*  
/* FORMAT OF ACP I/O BUFFER PACKET. THIS PACKET CONTAINS ALL THE DATA  
/* TRANSMITTED FROM THE USER TO THE ACP AND BACK FOR AN ACP FUNCTION.  
/* NOTE THAT THE DESCRIPTORS IN THE PACKET ARE TREATED BY BLISS CODE  
/* AS A BLOCKVECTOR.  
/*-
```

```
aggregate AIBDEF structure prefix AIB$;
```

```
    DESCRIPT longword unsigned;
```

```
    FILL_1 longword fill prefix AIBDEF tag $$;
```

```
    SIZE word unsigned;
```

```
    TYPE byte unsigned;
```

```
    FILL_2 byte fill prefix AIBDEF tag $$;
```

```
    constant 'LENGTH' equals . prefix AIB$ tag K;
```

```
    constant 'LENGTH' equals . prefix AIB$ tag C;
```

```
/* ADDRESS OF START OF DESCRIPTORS
```

```
/* SPARE LONGWORD
```

```
/* SIZE OF PACKET
```

```
/* PACKET TYPE CODE
```

```
/* SPARE
```

```
/* LENGTH OF PACKET HEADER
```

```
/* LENGTH OF PACKET HEADER
```

```
end AIBDEF;
```

```
end_module $AIBDEF;
```

module \$ABDDEF;

aggregate ABDDEF structure prefix ABD\$;

TEXT word unsigned;		/* WORD OFFSET TO DATA TEXT
COUNT word unsigned;		/* BYTE COUNT OF TEXT
USERVA longword unsigned;		/* USER VIRTUAL ADDRESS OF TEXT
constant "LENGTH" equals . prefix ABD\$ tag K;		/* SIZE OF DESCRIPTOR
constant "LENGTH" equals . prefix ABD\$ tag C;		/* SIZE OF DESCRIPTOR
constant WINDOW equals 0 prefix ABD tag \$C;		/* DESCRIPTOR FOR WINDOW ADDRESS
constant FIB equals 1 prefix ABD tag \$C;		/* DESCRIPTOR FOR FIB
constant NAME equals 2 prefix ABD tag \$C;		/* DESCRIPTOR FOR NAME STRING
constant RESL equals 3 prefix ABD tag \$C;		/* DESCRIPTOR FOR RESULT LENGTH
constant RES equals 4 prefix ABD tag \$C;		/* DESCRIPTOR FOR RESULT STRING
constant ATTRIB equals 5 prefix ABD tag \$C;		/* FIRST ATTRIBUTE DESCRIPTOR

end ABDDEF;

end_module \$ABDDEF;

SYS

MOD

/*

/*

/*

/*

/*

agg

enc

enc

MOD

/*

/*

/*

/*

/*

AGG

BRN

BRN

/*

/*

/*


```
module $ALFDEF;
```

```
/**
```

```
/*
```

```
/* $ALFDEF - structure for auto-login file.
```

```
/*
```

```
/*-
```

```
aggregate ALFDEF structure prefix ALF$;
```

```
DEVNAME character length 63;
```

```
USERNAME character length 32;
```

```
FILL 1 byte dimension 33 fill;
```

```
constant "LENGTH" equals . tag C;
```

```
constant "LENGTH" equals . tag K;
```

```
end ALFDEF;
```

```
end_module $ALFDEF;
```

```
/* Terminal device name
```

```
/* Associated username
```

```
/*  
/*  
/*
```

```
/*  
/*  
/*
```

```
/*  
/*  
/*
```

```
/*  
/*  
/*
```

```
/*  
/*  
/*
```

END

BRI

```
module $AQBDEF;
```

```
/*
```

```
/* DEFINITION OF ACP QUEUE HEADER
```

```
/*-
```

```
aggregate AQBDEF structure prefix AQB$;
```

```
  ACPQFL longword unsigned;
```

```
  ACPQBL longword unsigned;
```

```
  SIZE word unsigned;
```

```
  TYPE byte unsigned;
```

```
  MNTCNT byte unsigned;
```

```
  ACPPID longword unsigned;
```

```
  LINK longword unsigned;
```

```
  STATUS OVERLAY union fill;
```

```
    STATUS byte unsigned;
```

```
    STATUS BITS structure fill;
```

```
      UNIQUE bitfield mask;
```

```
      DEFCLASS bitfield mask;
```

```
      DEFSYS bitfield mask;
```

```
      CREATING bitfield mask;
```

```
      XQIOPROC bitfield mask;
```

```
    end STATUS BITS;
```

```
  end STATUS OVERLAY;
```

```
  ACPTYPE byte unsigned;
```

```
/* QUEUE FORWARD LINK
```

```
/* QUEUE BACK LINK
```

```
/* CONTROL BLOCK SIZE IN BYTES
```

```
/* BLOCK TYPE CODE
```

```
/* ACP MOUNT COUNT
```

```
/* ACP PROCESS PID
```

```
/* AQB LIST LINKAGE
```

```
/* STATUS BYTE
```

```
/* ACP IS UNIQUE TO THIS DEVICE
```

```
/* ACP IS DEFAULT FOR THIS CLASS
```

```
/* ACP IS DEFAULT FOR THE SYSTEM
```

```
/* ACP IS CURRENTLY BEING CREATED
```

```
/* extended QIO PROCessor is being used.
```

```
/* ACP TYPE CODE
```

```
/* ***** The following ACP type codes are now a user visible interface
/* ***** and the values may not be changed. There are parallel definitions
/* ***** in the $DVIDEF macro that define symbols of the form:
```

```
/* *****
/* *****          DVI$C_ACP_F11V1
```

```
/* *****          DVI$C_ACP_F11V2
```

```
/* *****          DVI$C_ACP_MTA
```

```
/* *****          ...
```

```
/* ***** All new ACP type values must be added at the end and the names
/* ***** must be 5 characters or less to keep the DVI form of the name
```

```
/* ***** 15 characters or less. Any additions must also be made in $DVIDEF
/* ***** and in the list of ASSUMES in the module SYSGETDEV in [SYS.SRC]
```

```
/*
```

```
  constant(
```

```
    UNDEFINED
```

```
    , F11V1
```

```
    , F11V2
```

```
    , MTA
```

```
    , NET
```

```
    , REM
```

```
    , JNL
```

```
/* UNDEFINED ACP
```

```
/* FILES-11 STRUCTURE LEVEL 1
```

```
/* FILES-11 STRUCTURE LEVEL 2
```

```
/* MAGTAPE
```

```
/* NETWORKS
```

```
/* REMOTE I/O
```

```
/* JOURNAL
```

```
  ) equals 0 increment 1 prefix AQB tag $K;
```

```
  CLASS byte unsigned;
```

```
  FILL_1 byte fill prefix AQBDEF tag $$;
```

```
  BUFCACHE longword unsigned;
```

```
  constant 'LENGTH' equals . prefix AQB$ tag K;
```

```
  constant 'LENGTH' equals . prefix AQB$ tag C;
```

```
/* ACP CLASS CODE
```

```
/* RESERVED
```

```
/* POINTER TO BUFFER CACHE
```

```
/* SIZE OF AQB
```

```
/* SIZE OF AQB
```


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end AQBDEF;

end_module \$AQBDEF;

SYS

mod
/*
/*
/*
/*
/*

cor

cor
cor
cor
cor
cor
cor
cor

cor
cor

end

```
module $ARBDEF;
/**
/*
/* Access Rights Block - structure defining process access rights and
/* privileges. Currently part of the PCB (meaning that the size of the
/* ARB declared here must track in the PCB).
/*
/*-
aggregate ARBDEF structure prefix ARB$;
  PRIV quadword unsigned;          /* Privilege mask
  FILL 1 longword fill tag $$;      /* Spare to allow for JIB type,size
  CLASS structure;                  /* Security classification mask
    FILL 2 longword dimension 5 fill tag $$;
  end CLASS;
  RIGHTSLIST longword unsigned dimension 4; /* Rights list descriptors
  constant HEADER equals . prefix ARB$ tag C; /* Length of header
  constant HEADER equals . prefix ARB$ tag K; /* Length of header
  RIGHTSDESC structure;              /* Descriptor for local rights list
    FILL 3 longword dimension 2 fill tag $$;
  end RIGHTSDESC;
  LOCALRIGHTS structure;             /* Process local rights list
    UIC longword unsigned;           /* User identification code.
    FILL 4 longword dimension 15 fill tag $$;
  end LOCALRIGHTS;
  constant "LENGTH" equals . prefix ARB$ tag K; /* Structure length
  constant "LENGTH" equals . prefix ARB$ tag C; /* Structure length
end ARBDEF;
end_module $ARBDEF;
```



```
module $ARCDEF;
```

```
/*+
/*
/* Bit definitions for EXESGL_ARCHFLAG - flags for VAX architecture differences
/*
/*-
```

```
aggregate ARCDEF union prefix ARCS;
```

```
  ARCDEF BITS structure;
```

```
    FILL_1 bitfield length 4 fill prefix ARCDEF tag $$; /*
    CHAR_EMUL bitfield mask; /* Char Str Ins Emul
    DCML_EMUL bitfield mask; /* Decimal String Emul
    EDPC_EMUL bitfield mask; /* EDITPC Instr Emul
    CRC_EMUL bitfield mask; /* CRC Instr Emul
    DFLT_EMUL bitfield mask; /* D-flt Data Type Emul
    FFLT_EMUL bitfield mask; /* F-flt Data Type Emul
    GFLT_EMUL bitfield mask; /* G-flt Data Type Emul
    HFLT_EMUL bitfield mask; /* H-flt Data Type Emul
    FILL_2 bitfield length 20 fill prefix ARCDEF tag $$; /*
```

```
  end ARCDEF_BITS;
```

```
end ARCDEF;
```

```
end_module $ARCDEF;
```

```
module $BBSDEF;
```

```
/*+
```

```
/*
```

```
/* Structure of message from disk ACP to bad block scan utility.
```

```
/*
```

```
/*-
```

```
aggregate BBSDEF structure prefix BB$$;
```

```
MSGTYPE byte unsigned;
```

```
FILL_1 byte dimension 3 fill prefix BBSDEF tag $$;
```

```
SEQUENCE word unsigned;
```

```
FILL_2 word fill prefix BBSDEF tag $$;
```

```
UCB longword unsigned;
```

```
FID word unsigned dimension 3;
```

```
constant 'LENGTH' equals . prefix BB$$ tag K;
```

```
constant 'LENGTH' equals . prefix BB$$ tag C;
```

```
/* message type code (MSG$C_SCANBAD)
```

```
/* unused
```

```
/* message sequence number
```

```
/* unused
```

```
/* UCB address of device
```

```
/* file ID of file
```

```
end BBSDEF;
```

```
end_module $BBSDEF;
```



```
module $BIICDEF;
```

```
/*+
/* BI Interface Chip Register Offset Definitions
/*-
```

```
aggregate BIICDEF structure prefix BIIC$;
```

```
/*+
/* BI Required Registers
/*-
```

```
DTREG_OVERLAY union fill;
  DTREG longword unsigned;          /*Device Type Register
  DEVTYPE_FIELD_OVERLAY union fill;
    DEVTYPE word unsigned;          /* Device Type Field
    DEVTYPE_BITS structure fill;
      FILL_1 bitfield length 8 fill prefix BIICDEF tag $$;
      MEMNODE bitfield length 7;    /* Lo order devtype bits
      NONDEC bitfield mask;         /* If zero, then memory
      REVCODE word unsigned;        /* Revision code
    end DEVTYPE_BITS;
  end DEVTYPE_FIELD_OVERLAY;
end DTREG_OVERLAY;

BICSR_OVERLAY union fill;
  BICSR longword unsigned;          /*BI Control/Status Register
  BICSR_BITS structure fill;
    NODE_ID bitfield length 4;      /* Node ID
    ARBCNTL bitfield length 2;      /* Arbitration Control
    SEIE bitfield mask;              /* Soft Error interrupt enable
    HEIE bitfield mask;              /* Hard Error interrupt enable
    UWP bitfield mask;              /* Unlock Write Pending
    FILL_2 bitfield length 1 fill prefix BIICDEF tag $$;
    SST bitfield mask;              /* Start Self test
    STS bitfield mask;              /* Self test Status
    BROKE bitfield mask;             /* Broke bit
    INIT bitfield mask;             /* Init bit
    SES bitfield mask;              /* Soft error summary
    HES bitfield mask;              /* Hard error summary
    BIICTYPE bitfield length 8;      /* BIIC type
    BIICREVN bitfield length 8;      /* BIIC Revision Number
  end BICSR_BITS;
end BICSR_OVERLAY;

BER_OVERLAY union fill;
  BER longword unsigned;            /*Bus Error Register
  BER_BITS structure fill;
    NPE bitfield mask;              /* Null Bus Parity Error
    CRD bitfield mask;              /* Corrected Read Data
    IPE bitfield mask;              /* ID Parity Error
    UPEN bitfield mask;             /* User Parity Enabled
    FILL_3 bitfield length 12 fill prefix BIICDEF tag $$;
    ICE bitfield mask;              /* Illegal Confirmation Error
    NEX bitfield mask;              /* Non-existent Address
    BTO bitfield mask;              /* Bus Timeout
```

```

        STO      bitfield mask;      /* Stall Timeout
        RTO      bitfield mask;      /* Retry Timeout
        RDS      bitfield mask;      /* Read Data Substitute
        SPE      bitfield mask;      /* Slave Parity Error
        CPE      bitfield mask;      /* Command Parity Error
        IVE      bitfield mask;      /* IDENT Vector Error
        TDF      bitfield mask;      /* Transmitter During Fault
        ISE      bitfield mask;      /* Interlock Sequence Error
        MPE      bitfield mask;      /* Master Parity Error
        CTE      bitfield mask;      /* Control Transmit Error
        MTCE     bitfield mask;      /* Master Transmit Check Error
        NMR      bitfield mask;      /* No Ack to Multi-Responder Command
    end BER_BITS;
end BER_OVERLAY;

EICR_OVERLAY union fill;
    EICR longword unsigned;          /*Error Interrupt Control Register
    EICR_BITS structure fill;
        FILL_4 bitfield length 2 fill prefix BIICDEF tag $$;
        EIVECTOR bitfield length 12; /* Vector
        FILL_5 bitfield length 2 fill prefix BIICDEF tag $$;
        LEVEL bitfield length 4;    /* Interrupt Level
        EIFORCE bitfield mask;      /* Force
        EISENT bitfield mask;      /* INTR command sent
        FILL_6 bitfield length 1 fill prefix BIICDEF tag $$;
        EIINTC bitfield mask;      /* Interrupt Complete
        EIINTAB bitfield mask;      /* Interrupt Abort
    end EICR_BITS;
end EICR_OVERLAY;

IDR longword unsigned;              /* Interrupt Destination
/* decoded ID in Lo order

/**
/* BIIC Specific Device Registers
/*-

IPIMR longword unsigned;            /* IP Interrupt Mask
/* decoded ID in Hi order

IPIDR longword unsigned;            /* IP Interrupt Destination
/* decoded ID in Lo order

IPISR longword unsigned;            /* IP Interrupt Source
/* decoded ID in Hi order

/*Note: following two
/* registers have lo order
/* 18 bits MBZ. This means
/* memories are multiples
/* of 256KB.
SAR longword unsigned;              /* Starting Address Register
EAR longword unsigned;              /* Ending Address Register

BCICR_OVERLAY union fill;
    BCICR longword unsigned;        /*BCI Control Register
    BCICR_BITS structure fill;

```



```

    FILL_7    bitfield length 3 fill prefix BIICDEF tag $$;
    RTOEVEN   bitfield mask;          /* RTO EV Enable
    PNXTEN    bitfield mask;          /* Pipeline NXT Enable
    IPINTREN   bitfield mask;          /* IP Interrupt Enable
    INTREN     bitfield mask;          /* Interrupt Enable
    BICSREN    bitfield mask;          /* BIIC CSR Space Enable
    UCSREN     bitfield mask;          /* User CSR Space Enable
    WINVALEN   bitfield mask;          /* Write Invalidate Enable
    INVALEN    bitfield mask;          /* INVAL Enable
    IDENTEN    bitfield mask;          /* IDENT Enable
    RESEN      bitfield mask;          /* Reserved Enable
    STOPEN     bitfield mask;          /* STOP Enable
    BDCSTEN    bitfield mask;          /* Broadcast Enable
    MSEN       bitfield mask;          /* Multicast Space Enable
    IPINTRF    bitfield mask;          /* IP Interrupt Force
    BURSTEN    bitfield mask;          /* Burst Enable
  end BCICR_BITS;
end BCICR_OVERLAY;

WSR_OVERLAY union fill;
  WSR longword unsigned;              /*Write Status Register
  WSR_BITS structure fill;
    FILL_8    bitfield length 28 fill prefix BIICDEF tag $$;
    GPR0       bitfield mask;          /* These bits indicate
    GPR1       bitfield mask;          /* that the corresponding
    GPR2       bitfield mask;          /* General Purpose Register
    GPR3       bitfield mask;          /* has been written to.
  end WSR_BITS;
end WSR_OVERLAY;

IPISTPF_OVERLAY union fill;
  IPISTPF longword unsigned;           /*IPINTR/STOP Force CMD Reg
  IPISTPF_BITS structure fill;
    FILL_9     bitfield length 11 fill prefix BIICDEF tag $$;
    MIDEN      bitfield mask;          /* Determines whether Master ID
                                          /* transmitted on BI D<31:16>.
    CMD        bitfield length 4;      /* Command (IPINTR or STOP).
  end IPISTPF_BITS;
end IPISTPF_OVERLAY;

FILL_10 longword fill;                /*Unused
FILL_11 longword fill;                /*Unused
FILL_12 longword fill;                /*Unused

UICR_OVERLAY union fill;
  UICR longword unsigned;              /*UserInterrupt Control Register
  UICR_BITS structure fill;
    FILL_13    bitfield length 2 fill prefix BIICDEF tag $$;
    UIVECTOR   bitfield length 12;     /* Vector
    FILL_14    bitfield length 1 fill prefix BIICDEF tag $$;
    EXVECTOR   bitfield mask;          /* External Vector
    UIFORCE    bitfield length 4;       /* Force (1 for each level)
    UISENT     bitfield length 4;       /* INTR command sent(1 for each level)
    UIINTC     bitfield length 4;       /* Interrupt Complete(1 for each level)
    UIINTAB    bitfield length 4;       /* Interrupt Abort(1 for each level)

```

```
end UICR BITS;  
end UICR_OVERLAY;
```

```
FILL_15 byte dimension 172 fill prefix BIICDEF tag $$;
```

```
/*+  
/* BIIC General Purpose Device Registers  
/*-
```

GPR0 longword unsigned;	/*General Purpose Register 0
GPR1 longword unsigned;	/*General Purpose Register 1
GPR2 longword unsigned;	/*General Purpose Register 2
GPR3 longword unsigned;	/*General Purpose Register 3

```
end BIICDEF;
```

```
end_module $BIICDEF;
```



```
module $BIMEMDEF;
```

```
/*+  
/* BI Memory Node Registers  
/*-
```

```
aggregate BIMEMDEF structure prefix BIMEMS;
```

```
  FILL_15 byte dimension 256 fill prefix BIMEMDEF tag $$;
```

```
  CSR1_OVERLAY union fill;
```

```
    CSR1 longword unsigned;
```

```
    /*CSR 1
```

```
    CSR1_OVERLAY union fill;
```

```
      CSR1 BITS structure fill;
```

```
        DIAGBTS bitfield length 7;
```

```
        /* Used during ECC diag cycles
```

```
        FILL_1 bitfield length 1 fill prefix BIMEMDEF tag $$;
```

```
        INTLV bitfield mask;
```

```
        /* 1=> internally interleaved
```

```
        CNTLERR bitfield mask;
```

```
        /* Controller error
```

```
        MWRITER bitfield mask;
```

```
        /* RDS on masked write
```

```
        FILL_2 bitfield length 1 fill prefix BIMEMDEF tag $$;
```

```
        BROKE bitfield mask;
```

```
        /* Broke bit
```

```
        INTLK bitfield mask;
```

```
        /* Interlock flag
```

```
        MEMVAL bitfield mask;
```

```
        /* Memory contents valid
```

```
        INHCRD bitfield mask;
```

```
        /* Inhib. CRD reporting
```

```
        RAMTYPE bitfield length 2;
```

```
        /* 00=>64Ks, 01=>256Ks
```

```
        MEMSIZE bitfield length 11;
```

```
        /* Size in 256KB increments
```

```
        ECCDIS bitfield mask;
```

```
        /* Used with following bit
```

```
        ECCDIAG bitfield mask;
```

```
        /*
```

```
        ERRSUM bitfield mask;
```

```
        /* Error summary(includes CSR2)
```

```
      end CSR1 BITS;
```

```
    end CSR1_OVERLAY;
```

```
  end CSR1_OVERLAY;
```

```
  CSR2_OVERLAY union fill;
```

```
    CSR2 longword unsigned;
```

```
    /*CSR 2
```

```
    CSR2_OVERLAY union fill;
```

```
      CSR2 BITS structure fill;
```

```
        ERRSYND bitfield length 7;
```

```
        /* Error syndrome
```

```
        FILL_3 bitfield length 1 fill prefix BIMEMDEF tag $$;
```

```
        INTLVAD bitfield mask;
```

```
        /* Interleave Address
```

```
        ERRADDR bitfield length 15;
```

```
        /* Internal addr of error
```

```
        FILL_4 bitfield length 4 fill prefix BIMEMDEF tag $$;
```

```
        ADRSERR bitfield mask;
```

```
        /* Internal address parity error
```

```
        CRDLOGR bitfield mask;
```

```
        /* CRD Error Log REQ
```

```
        HIERATE bitfield mask;
```

```
        /* Hi Error Rate
```

```
        RDSLOGR bitfield mask;
```

```
        /* RDS Error Log REQ
```

```
      end CSR2 BITS;
```

```
    end CSR2_OVERLAY;
```

```
  end CSR2_OVERLAY;
```

```
end BIMEMDEF;
```

```
end_module $BIMEMDEF;
```

```
module $BOODEF;
```

```
/**
```

```
/* BOO - Boot Control Block
```

```
/*
```

```
/* A boot control block is produced by SYSBOOT and placed in non-paged  
/* pool. It is pointed to by the cell EXESGL BOOTCB and contains  
/* the mapping information for SYS.EXE, SYSDUMP.DMP, SYSPARAM portion  
/* of SYS.EXE, and non-resident BUGCHECK code.  
/*-
```

```
aggregate BOODEF structure prefix BOO$;
```

```
    CHECKSUM longword unsigned;
```

```
    PARAM_MAP longword unsigned;
```

```
    SIZE word unsigned;
```

```
    TYPE byte unsigned;
```

```
    SUBTYP byte unsigned;
```

```
    SYS_VBN longword unsigned;
```

```
    SYS_SIZE longword unsigned;
```

```
    SYS_MAP longword unsigned;
```

```
    DMP_VBN longword unsigned;
```

```
    DMP_SIZE longword unsigned;
```

```
    DMP_MAP longword unsigned;
```

```
    BUG_MAP longword unsigned;
```

```
    constant 'LENGTH' equals . prefix BOO$ tag K;
```

```
    constant 'LENGTH' equals . prefix BOO$ tag C;
```

```
end BOODEF;
```

```
end_module $BOODEF;
```

```
/* Checksum
```

```
/* Address of map for SYSPARAM
```

```
/* Size of fixed portion of BOOTCB
```

```
/* Type of control block
```

```
/* Sub-type
```

```
/* SYS.EXE starting VBN
```

```
/* SYS.EXE size in blocks
```

```
/* from starting VBN to end of executable image
```

```
/* Adr of map for SYS.EXE
```

```
/* Starting VBN for dump file
```

```
/* Size in blocks of dump file
```

```
/* from starting VBN to end of file
```

```
/* Adr of map for SYSDUMP.DMP
```

```
/* Adr of map for non-resident BUGCHECK code
```



```
module $BQODEF;
```

```
/*+
/*
/* Offsets into the IO vector of the BOOT driver.
/*
/*-
```

```
aggregate BQODEF structure prefix BQO$;
```

QIO longword unsigned;	/* QIO entry
MAP longword unsigned;	/* Mapping entry
SELECT longword unsigned;	/* Selection entry
DRIVNAME longword unsigned;	/* Offset to driver name
VERSION word unsigned;	/* Version number of VMB
VERCHECK word unsigned;	/* Check field
RESELECT longword unsigned;	/* Reselection entry
MOVE longword unsigned;	/* Move driver entry
UNIT_INIT longword unsigned;	/* Unit initialization entry
AUXDRNAME longword unsigned;	/* Offset to auxiliary driver name
UMR_DIS longword unsigned;	/* UNIBUS Map Registers to disable
UCODE longword unsigned;	/* Absolute address of booting microcode
UNIT_DISC longword unsigned;	/* Unit disconnecting entry
DEVNAME longword unsigned;	/* Offset to boot device name
UMR_TMPL longword unsigned;	/* UNIBUS map register template
UMR_DP byte unsigned;	/* UNIBUS map register data path
CPUTYPE byte unsigned;	/* Cpu type from SID
CPUDATA longword unsigned;	/* Cpu data from SID
TENUSEC longword unsigned;	/* TIMEDWAIT loop delay counter
UBDELAY longword unsigned;	/* TIMEDWAIT loop delay counter

```
end BQODEF;
```

```
end_module $BQODEF;
```

```
MODULE $BRKTDEF;          /*
/* +
/*
/* Structure of breakthru message descriptor block.
/*
/* -
```

```
AGGREGATE $BRKTDEF STRUCTURE;
```

```
BRKTHRU_OVERLAY UNION;    /* set up overlay
```

```
BRKTHRU_1 STRUCTURE PREFIX BRK$;
```

/*		
/* Common Storage		
/*		
PRIVS	quadword unsigned;	/* privs to set
SIZE	word unsigned;	/* block size
OUTCNT	word unsigned;	/* outstanding I/O count
DEVNAME	character length 16;	/* device name for \$ASSIGN
PCB	longword unsigned;	/* Address of PCB
IOSB	longword unsigned;	/* Address of return IOSB
ASTADR	longword unsigned;	/* Address of AST routine

```

ASTPRM      longword unsigned;      /* Value of AST parameter
TIMEOUT      quadword unsigned;     /* Timeout value
CARCON      longword unsigned;      /* carriage control
FLAGS       longword unsigned;      /* flags
SENDNAME     character length 16;    /* username/terminal name
SENDTYPE     word unsigned;          /* send descriptor type
SECONDS      word unsigned;          /* Timeout in seconds
REQID        longword unsigned;      /* send requestor ID
/*
/* miscellaneous context
/*
PIDCTX       longword unsigned;      /* Last PID in user search
UCBCTX       longword unsigned;      /* Last UCB in TTY search
DDBCTX       longword unsigned;      /* Last DDB in TTY search
QIOCTX       longword unsigned;      /* per QIO context address
EFN          word unsigned;          /* user event flag *BYTE***?
STS_OVERLAY UNION FILL;
  STS        byte unsigned;          /* status flags
  STS_BITS STRUCTURE FILL;
    LOCKED    bitfield mask;         /* status flags bit definition
    DONE      bitfield mask;         /* I/O dataabse locked
    CHKPRIV   bitfield mask;         /* done looking for terminals
    /* check privilege
  END STS_BITS;
END STS_OVERLAY;
PRVMODE      byte unsigned;          /* previous mode
SCRMSGLEN    longword unsigned;      /* screen message length
SCRMSG       longword unsigned;      /* screen message address
/*
/* status block
/*
STATUS       word unsigned;          /* status
SUCCESSCNT   word unsigned;          /* Success count
TIMEOUTCNT   word unsigned;          /* Timeout count
REFUSED CNT  word unsigned;          /* Refused count
/*
/* start of mailbox message
/*
TRMSG        word unsigned;          /* mailbox message code
TRMUNIT      word unsigned;          /* tty unit number
TRMNAME      character length 16;    /* terminal name
/*
/* real message starts here
/*
MSGLEN       word unsigned;          /* length of msgbuf
MSGBUF       character length 0;     /* start of message
/*
/* Length
/*
  CONSTANT LENGTH EQUALS . TAG C;
END BRKTHRU_1;
BRKTHRU_2 STRUCTURE PREFIX brk2$;

```



```
/*  
/* Per QIO storage  
/*
```

```
COMMON    longword unsigned;  
IOSB      quadword unsigned;  
CHAN      word unsigned;
```

```
/* address of common area  
/* iosb for QIO  
/* channel
```

```
/*  
/* Length of Per QIO context  
/*  
    constant LENGTH equals . tag C;
```

```
END BRKTHRU_2;  
END BRKTHRU_OVERLAY;
```

```
end $BRKTDEF;  
end_module $BRKTDEF;
```

```
module $BTDDDEF;
```

```
/*+
```

```
/*
```

```
/* Boot device codes
```

```
/*
```

```
/*-
```

```
constant MB      equals 0  prefix BTD tag $K;
```

```
constant DM      equals 1  prefix BTD tag $K;
```

```
constant DL      equals 2  prefix BTD tag $K;
```

```
constant DQ      equals 3  prefix BTD tag $K;
```

```
constant QNA     equals 7  prefix BTD tag $K;
```

```
constant PROM    equals 8  prefix BTD tag $K;
```

```
constant UDA     equals 17  prefix BTD tag $K;
```

```
constant HSCCI   equals 32  prefix BTD tag $K;
```

```
constant CONSOLE equals 64  prefix BTD tag $K;
```

```
end_module $BTDDDEF;
```

```
/* "$K_" added, 8/30/79, CHP  
/* Massbus device  
/* Types 1-31. reserved for unibus  
/* devices  
/* RK06/7  
/* RL02  
/* RB02/RB80  
/* QNA  
/* PROM  
/* UDA  
/* End of unibus devices  
/* HSC on CI  
/* Console block storage device
```



```
module $BUADEF;
```

```
/*+
```

```
/* BI Bus UNIBUS Adapter Register Offset Definitions
```

```
/*-
```

```
aggregate BUADEF structure prefix BUAS;
```

```
  FILL_1 byte dimension 240 fill prefix BUADEF tag $$; /* Value is F0 (Hex)
```

```
  GPRO_OVERLAY union fill; /* BIIC GPRO used by BUA.
```

```
    GPRO longword unsigned;
```

```
    GPROFIELDS structure fill;
```

```
      UBPUP bitfield mask; /* UNIBUS Power Up (RO)
```

```
      FILL_2 bitfield length 15 fill prefix BUADEF tag $$; /* SPARE
```

```
      IEN_COPY bitfield length 16; /* Internal Error Number copied  
/* here from BUACSR.
```

```
    end GPROFIELDS;
```

```
  end GPRO_OVERLAY;
```

```
  FILL_3 byte dimension 1580 fill prefix BUADEF tag $$; /* Cumulative Value
```

```
/* is 720 (Hex)
```

```
/* This register holds the error summaries and error interrupt enable for BUA.
```

```
  CSR_OVERLAY union fill;
```

```
    CSR longword unsigned;
```

```
/* Control and Status Register
```

```
    CSR_BITS structure fill;
```

```
      IEN bitfield length 8; /* Instruction Error Number (RO)
```

```
/* Self Test failure code
```

```
  FILL_4 bitfield length 8 fill prefix BUADEF tag $$; /* Reserved Field
```

```
  REGDMP bitfield mask; /* uDiagnostic Register Dump bit. (WO)
```

```
/* When 1 is written, causes uEngine to  
/* dump stored internal registers.
```

```
  UPI bitfield mask; /* UNIBUS Power Initialization bit. (WO)
```

```
/* When 1 written, causes power up init  
/* on UNIBUS.
```

```
  FILL_5 bitfield length 2 fill prefix BUADEF tag $$; /* Reserved Field
```

```
  EIE bitfield mask; /* BUA Error Interrupt Enable (R/W)
```

```
  FILL_6 bitfield length 3 fill prefix BUADEF tag $$; /* Reserved Field
```

```
  BADBDP bitfield mask; /* Bit set if BDP 6 or 7 selected (W1C).
```

```
  IMR bitfield mask; /* Invalid Map Register (W1C)
```

```
  UIE bitfield mask; /* Bit set if DATO(B) does not follow
```

```
/* DATIP on UNIBUS (W1C)
```

```
  USSTO bitfield mask; /* UNIBUS SSYNC timeout (W1C)
```

```
  BIF bitfield mask; /* UNIBUS to BI failure (W1C)
```

```
  FILL_7 bitfield length 2 fill prefix BUADEF tag $$; /* Reserved Field
```

```
  ERR bitfield mask; /* Logical OR of error bits in CSR (RO)
```

```
  end CSR_BITS;
```

```
end CSR_OVERLAY;
```


/* BUA Vector Offset Register - BITS [13:09] of the VOR register are
/* concatenated with the incoming UNIBUS vector to form a 14 bit BI vector.

```
VOR_OVERLAY union fill;
  VOR longword unsigned;      /* Vector Offset Register
  VOR_BITS structure fill;

  FILL_8 bitfield length 9 fill prefix BUADEF tag $$; /* Reserved Field
  VECOFF bitfield length 5; /* Vector Offset (R/W)
end VOR_BITS;
end VOR_OVERLAY;
```

/* Failed UNIBUS Address Register (FUBAR)

```
FUBAR_OVERLAY union fill;
  FUBAR longword unsigned;      /* Failed UNIBUS Address Register
  FUBAR_BITS structure fill;
  FUBAR_ADR bitfield length 16; /* Failed UNIBUS Address (Hi 16 bits)
end FUBAR_BITS;
end FUBAR_OVERLAY;
```

FILL_9 byte dimension 4 fill prefix BUADEF tag \$;

```
BDP1_OVERLAY union fill;
  BDP1 longword unsigned;      /* BDP1
  BDPFIELDS structure fill;
  STATUS bitfield length 16; /* Bit for each byte
  ADDR bitfield length 16; /* UNIBUS addr of octaword
end BDPFIELDS;
end BDP1_OVERLAY;
BDP2 longword unsigned; /* BDP2
BDP3 longword unsigned; /* BDP3
BDP4 longword unsigned; /* BDP4
BDP5 longword unsigned; /* BDP5
```

FILL_10 byte dimension 12 fill prefix BUADEF tag \$; /* Cumulative Value

```
DPCSRO_OVERLAY union fill;
  DPCSRO longword unsigned; /* Datapath 0 CSR
  DPCSR_BIT structure fill;
  PURGE bitfield mask; /* Purge (WO) bit
  FILL_11 bitfield length 20 fill prefix BUADEF tag $; /* SPARE
  DPSEC bitfield length 3; /* Data Path #
end DPCSR_BIT;
end DPCSRO_OVERLAY;
```

```
DPCSRO1 longword unsigned; /* Datapath 1 CSR
DPCSRO2 longword unsigned; /* Datapath 2 CSR
DPCSRO3 longword unsigned; /* Datapath 3 CSR
DPCSRO4 longword unsigned; /* Datapath 4 CSR
DPCSRO5 longword unsigned; /* Datapath 5 CSR
```

FILL_12 byte dimension 8 fill prefix BUADEF tag \$; /* Cumulative Value


```
FILL_13 byte dimension 144 fill prefix BUADEF tag $$;

MAP_OVERLAY union fill;
  MAP longword unsigned dimension 496;      /* Map Registers
  MAP_BITS structure fill;
    MAP_ADDR bitfield length 21;            /* PFN
    MAP_DPD bitfield length 3;              /* Datapath Designator

    FILL_14 bitfield length 1 fill prefix BUADEF tag $$; /* Reserved field

    MAP_BO bitfield mask;                   /* Byte Offset
    LWAEN bitfield mask;                   /* Long Word Access Enable

    FILL_15 bitfield length 3 fill prefix BUADEF tag $$; /* Reserved field

    PPIE bitfield mask;                   /* Reserved for use on BUA's
                                           /* with PDP-11 on UNIBUS.
    MAP_VALID bitfield mask;               /* Map Register Valid
  end MAP_BITS;
  constant MAXDP equals 5 prefix BUA tag $C; /*MAXIMUM DATAPATH !
end MAP_OVERLAY;
end BUADEF;
end_module $BUADEF;
```

module \$CADEF;

```
/*+
/* CONDITIONAL ASSEMBLY PARAMETER DEFINITIONS
/*
/*      A NONZERO PARAMETER VALUE INDICATES PRESENCE OF THE FEATURE.
/*      A ZERO PARAMETER VALUE INDICATES ABSENCE OF THE FEATURE
/*
/*      ALL PARAMETERS MUST BE DEFINED
/*-
```

```
constant SIMULATOR      equals 1  prefix CA tag $;    /*INCLUDE SIMULATOR SUPPORT CODE
constant MEASURE          equals 2  prefix CA tag $;    /*INCLUDE PERFORMANCE MEASUREMENT HOOKS
constant MEASURE_IOT      equals 4  prefix CA tag $;    /*INCLUDE I/O TRANSACTION DATA COLLECTION
```

end_module \$CADEF;

SY

mo
/*
/*
/*

ag


```
module $CANDEF;
```

```
/*+  
/* CAN - DEFINE DRIVER CANCEL ROUTINE REASON CODES  
/*  
/* THESE CODES ARE PASSED TO THE CANCEL ROUTINE OF A DRIVER SO THAT  
/* THE ROUTINE CAN DISTINGUISH BETWEEN CALLS FROM $DASSGN AND $CANCEL.  
/*  
/*-
```

```
constant(  
    CANCEL  
    , DASSGN  
    , AMBXDGN  
    ) equals 0 increment 1 prefix CAN tag $C;
```

```
/*CANCEL INVOKED DUE TO $CANCEL SERVICE  
/*CANCEL INVOKED DUE TO $DASSGN SERVICE  
/*CANCEL INVOKED DUE TO MB DISASSOCIATION
```

```
end_module $CANDEF;
```

```
module $CDRPDEF;
```

```
/**
```

```
/* CDRP - CLASS DRIVER I/O REQUEST PACKET
```

```
/*
```

```
/* This structure contains within it, at negative offsets, a full IRP.
```

```
/* For this reason all IRP fields must be at the same relative offsets
```

```
/* as the corresponding fields in the IRP.
```

```
/*
```

```
/*-
```

```
aggregate CDRPDEF structure prefix CDRPS origin FQFL;
```

```
IOQFL longword unsigned;
```

```
IOQBL longword unsigned;
```

```
IRP_SIZE word unsigned;
```

```
IRP_TYPE byte unsigned;
```

```
RMOD byte unsigned;
```

```
{ RMOD subfields [defined in IRPDEF]
```

```
{ bitfield MODE length 2;
```

```
PID longword unsigned;
```

```
AST longword unsigned;
```

```
ASTPRM longword unsigned;
```

```
WIND longword unsigned;
```

```
UCB longword unsigned;
```

```
FUNC word unsigned;
```

```
{ FUNC subfields [defined in IRPDEF]
```

```
{ bitfield FCODE length 6;
```

```
{ bitfield FMODE length 10;
```

```
EFN byte unsigned;
```

```
PRI byte unsigned;
```

```
IOSB longword unsigned;
```

```
CHAN word unsigned;
```

```
STS word unsigned;
```

```
{ STS subfields [defined in IRPDEF]
```

```
{ bitfield BUFIO;
```

```
{ bitfield FUNC;
```

```
{ bitfield PAGIO;
```

```
{ bitfield COMPLX;
```

```
{ bitfield VIRTUAL;
```

```
{ bitfield CHAINED;
```

```
{ bitfield SWAPIO;
```

```
{ bitfield DIAGBUF;
```

```
{ bitfield PHYSIO;
```

```
{ bitfield TERMIO;
```

```
{ bitfield MBXIO;
```

```
{ bitfield EXTEND;
```

```
{ bitfield FILACP;
```

```
{ bitfield MVIRP;
```

```
{ bitfield KEY;
```

```
SVAPTE longword unsigned;
```

```
BOFF word unsigned;
```

```
BCNT_OVERLAY union fill;
```

```
BCNT longword unsigned;
```

```
BCNT word unsigned;
```

```
end BCNT_OVERLAY;
```

```
/*I/O QUEUE FORWARD LINK
```

```
/*I/O QUEUE BACKWARD LINK
```

```
/*SIZE OF IRP IN BYTES
```

```
/*STRUCTURE TYPE FOR IRP
```

```
/*ACCESS MODE OF REQUEST
```

```
/* MODE SUBFIELD
```

```
/*PROCESS ID OF REQUESTING PROCESS
```

```
/*ADDRESS OF AST ROUTINE
```

```
/*AST PARAMETER
```

```
/*ADDRESS OF WINDOW BLOCK
```

```
/*ADDRESS OF DEVICE UCB
```

```
/*I/O FUNCTION CODE AND MODIFIERS
```

```
/* FUNCTION CODE FIELD
```

```
/* FUNCTION MODIFIER FIELD
```

```
/*EVENT FLAG NUMBER AND EVENT GROUP
```

```
/*BASE PRIORITY OF REQUESTING PROCESS
```

```
/*ADDRESS OF I/O STATUS DOUBLE LONGWORD
```

```
/*PROCESS I/O CHANNEL NUMBER
```

```
/*REQUEST STATUS
```

```
/* BUFFERED I/O FLAG /*THESE BITS
```

```
/* 1=>READ FUNCTION /*MUST BE ADJACENT
```

```
/* PAGING I/O FLAG /*AND IN ORDER
```

```
/* COMPLEX BUFFERED I/O
```

```
/* VIRTUAL I/O FUNCTION
```

```
/* CHAINED BUFFERED I/O OPERATION
```

```
/* SWAP I/O OPERATION
```

```
/* DIAGNOSTIC BUFFER ALLOCATED
```

```
/* PHYSICAL I/O
```

```
/* TERMINAL I/O (FOR SELECTING PRIORITY INC)
```

```
/* MAILBOX BUFFERED READ
```

```
/* AN IRPE IS LINKED TO THIS IRP
```

```
/* FILE ACP I/O (BOTH DIOCNT AND BIOCNT)
```

```
/* MOUNT VERIFICATION IRP
```

```
/* ENCRYPTION KEY
```

```
/*SYSTEM VIRTUAL ADDRESS OF FIRST PTE
```

```
/*BYTE OFFSET IN FIRST PAGE
```

```
/*BYTE COUNT OF TRANSFER
```

```
/* OLD WORD DEFINITION FOR COMPATIBILITY
```



```

FILL 1 word fill prefix CDRPDEF tag $$;
IOST1 OVERLAY union fill;
  IOST1 longword unsigned;
  MEDIA longword unsigned;
end IOST1 OVERLAY;
IOST2 OVERLAY union fill;
  IOST2 longword unsigned;
  TT_TERM OVERLAY union fill;
    TT_TERM longword unsigned;
    CARCON byte unsigned;
  end TT_TERM OVERLAY;
end IOST2 OVERLAY;
NT_PRVMSK OVERLAY union fill;
  NT_PRVMSK quadword unsigned;
  NT_PRVMSK_FIELDS structure fill;
    ABCNT OVERLAY union fill;
      ABCNT longword unsigned;
      ABCNT OVERLAY1 union;
        ABCNT word unsigned;
        TT PRMPT word unsigned;
      end ABCNT OVERLAY1;
    end ABCNT OVERLAY;
    OBCNT OVERLAY union fill;
      OBCNT longword unsigned;
      OBCNT word unsigned;
    end OBCNT OVERLAY;
  end NT_PRVMSK_FIELDS;
end NT_PRVMSK OVERLAY;
SEGVBN OVERLAY union fill;
  SEGVBN longword unsigned;
  JNL_SEQNO longword unsigned;
end SEGVBN OVERLAY;
DIAGBUF longword unsigned;
SEQNUM longword unsigned;
EXTEND longword unsigned;
ARB longword unsigned;
KEYDESC longword unsigned;

```

```

/*
/*

```

```

constant CDRPBASE equals . prefix CDRP$ tag K;
constant CDRPBASE equals . prefix CDRP$ tag C;
FQFL longword unsigned;
FQBL longword unsigned;
CDRPSIZE word unsigned;
CD TYPE byte unsigned;
FIPL byte unsigned;
FPC longword unsigned;
FR3 longword unsigned;
FR4 longword unsigned;
SAVD RTN longword unsigned;
MSG BUF longword unsigned;
RSPID longword unsigned;
CDT longword unsigned;
RWCPTN longword unsigned;
constant 'LENGTH' equals . prefix CDRP$ tag K;
constant 'LENGTH' equals . prefix CDRP$ tag C;

```

```

/* ROUND UP TO NEXT LONGWORD
/*FIRST I/O STATUS LONGWORD (FOR I/O POST)
/*MEDIA ADDRESS

/*SECOND I/O STATUS LONGWORD
/*ADDRESS OF READ TERMINATORS MASK
/*CARRIAGE CONTROL

/* PRIVILEGE MASK FOR DECNET

/* ACCUMULATED BYTES TRANSFERED
/* OLD WORD DEFINITION FOR COMPATIBILITY
/* PROMPT SIZE

/* ORIGINAL TRANSFER BYTE COUNT
/* OLD WORD DEFINITION FOR COMPATIBILITY

/*VIRTUAL BLOCK NUMBER OF CURRENT SEGMENT
/* SEQUENCE NUMBER IN JOURNAL

/* DIAGNOSTIC BUFFER ADDRESS
/* SEQUENCE NUMBER
/* ADDRESS OF IRPE
/* ACCESS RIGHTS BLOCK ADDRESS
/* ADDRESS OF ENCRYPTION KEY DESCRIPTOR

```

```

/* Fork Queue FLINK
/* Fork Queue Blink
/* Size field for positive section only
/* Type, always of interest
/* Fork IPL
/* Fork PC
/* Fork R3
/* Fork R4
/* Saved return address from level 1 JSB
/* Address of allocated MSCP buffer
/* Allocated Request ID
/* Address of Connection Descriptor Table
/* RWAITCNT pointer

```

SY

MO

/*

/*

/*

/*

/*

/*

ag

en

en

```

/*      CDRP extensions
      CDRP_EXTENSIONS union fill;
/*      Block Transfer Extension
      BLK_XFER_EXTENSION structure fill;
      LBUFH_AD longword unsigned;
      LBOFF longword unsigned;
      RBUFH_AD longword unsigned;
      RBOFF longword unsigned;
      XCT_LEN longword unsigned;
      constant BT_LEN equals .;
      constant BT_LEN equals . tag C;
end BLK_XFER_EXTENSION;

/*      Class Driver Extension
      CLS_DRV_EXTENSION structure fill;
      FILE_3 longword fill;
      LBUFHNDL character length 12;
      UBARSRCE longword unsigned;
      DUTUFLAGS structure longword unsigned;
      CAND bitfield mask;
      CANIO bitfield mask;
      ERLIP bitfield mask;
      PERM bitfield mask;
      HIRT bitfield mask;
      DENSCK bitfield mask;
      filler bitfield length 2 fill;
      IVCMD bitfield mask;
      end DUTUFLAGS;
      DUTUCNTR word unsigned;
      ENDMSGISZ word unsigned;
      constant CD_LEN equals .;
      constant CD_LEN equals . tag C;
end CLS_DRV_EXTENSION;

/*      Connection management extension
      CON_MGT_EXTENSION structure fill;
      CNX_WORK_AREA union fill;
      CNX_CLIENT_DATA structure fill;
      VAL1 longword unsigned;
      VAL2 longword unsigned;
      VAL3 longword unsigned;
      VAL4 longword unsigned;
      VAL5 longword unsigned;
      VAL6 longword unsigned;
      VAL7 longword unsigned;
      VAL8 longword unsigned;
      end CNX_CLIENT_DATA;
      CNX_BLOCK_XFER structure fill;
      FILL_LBUFH_AD longword fill;
      FILL_VAL longword dimension 4;

```

/* Local Buffer Handle Address
/* Local Byte Offset
/* Remote Buffer Handle Address
/* Remote Byte Offset
/* Transfer length in bytes

{ Skip local buffer handle address (above)
/* Local buffer handle
/* UNIBUS mapping resources allocated
/* Class driver status flags:
/* canceled I/O request
/* cancel operation I/O request
/* error log in progress
/* CDDB permanent IRP/CDRP
/* HIRT permanent IRP/CDRP
/* Tape density check required
{ Byte align IVCMD
/* Invalid command processing in progress

/* General purpose counter
/* Size of most recent MSCP end message

/* data value 1
/* data value 2
/* data value 3
/* data value 4
/* data value 5
/* data value 6
/* data value 7
/* data value 8

{ filler for CDRP\$L LBUFH_AD
{ filler for VAL2 through VAL5


```

        CNXSVAPTE longword unsigned; /* Block SVAPTE
        CNXBOFF word unsigned; /* Block buffer offset
        CNXBCNT longword unsigned; /* Block xfer length
        CNXRMOD byte unsigned; /* Block access mode
        CLTSTS byte unsigned; /* A client's status field
    end CNX_BLOCK_XFER;
end CNX_WORK_AREA;
MSGBLD longword unsigned; /* Address of MSG BUILD routine
SAVEPC longword unsigned; /* Caller's saved PC
SENDSEQNM word unsigned; /* Message sequence number
CNXSTATE byte unsigned; /* CNX message state
    constant ( /* Possible states:
        NORMAL /* The standard case (particular no block xfer)
        , REQUESTOR /* Block transfer requestor
        , PARTNER /* Block transfer partner, active
        , PART_IDLE /* Block transfer partner, idle
        , REQ_MAP /* Block transfer requestor, waiting for buffer handle
        , PART_MAP /* Block transfer partner, waiting for buffer handle
    ) equals 0 increment 1;
FILL_5 byte fill;
RETRSPID longword unsigned; /* RSPID to return
VAL9 longword unsigned; /* data value 9
    constant CM_LENGTH equals .;
    /*
    /* The following fields are only valid
    /* for long connection manager CDRPs.
    /*
    VAL10 longword unsigned; /* data value 10
    constant CM_LONG_LENGTH equals.;
end CON_MGT_EXTENSTION;

end CDRP_EXTENSIONS;

end CDRPDEF;

end_module $CDRPDEF;

```

```
module $CINDEF;
/**
/*
/* Connect to interrupt definitions for QIO parameters
/*
/*-

aggregate CINDEF union prefix CINS;
  CINDEF BITS structure fill;
    EFN bitfield mask;          /* Set event flag on interrupt.
    USECAL bitfield mask;       /* Use CALL interface.
    REPEAT bitfield mask;       /* Do repeated interrupt service.
    AST bitfield mask;          /* Queue AST on interrupt.
    INIDEV bitfield mask;       /* Device initialization to do.
    START bitfield mask;        /* Start I/O routine.
    ISR bitfield mask;          /* ISR to execute.
    CANCEL bitfield mask;       /* Cancel I/O routine.
    FILL_1 bitfield length 8 fill prefix CINDEF tag $$; /* Spare bits.
    EFNUM bitfield mask length 16; /* Event flag number.
  end CINDEF_BITS;

end CINDEF;

  aggregate CINDEF1 structure prefix CINS;
    INIDEV longword unsigned;   /* Offset to device init routine.
    START longword unsigned;    /* Offset to start device routine.
    ISR longword unsigned;      /* Offset to interrupt service routine.
    CANCEL longword unsigned;    /* Offset to cancel I/O routine.

  end CINDEF1;

aggregate CINDEF2 structure prefix CINS;
  SPTCOUNT longword unsigned; /* Number of SPTs allocated.
  STARTVPN_OVERLAY union fill;
    STARTVPN longword unsigned; /* Starting VPN allocated.
    STARTBIT longword unsigned; /* Starting bit in bitmap.

  end STARTVPN_OVERLAY;
end CINDEF2;

end_module $CINDEF;
```



```
module $CCBDEF;
```

```
/**
/* CCB - CHANNEL CONTROL BLOCK
/*
/* THERE IS ONE CHANNEL CONTROL BLOCK FOR EACH SOFTWARE CHANNEL THAT A
/* PROCESS MAY INITIATE I/O REQUESTS ON. THE NUMBER OF SUCH I/O CHANNELS
/* IS DETERMINED BY THE FIXED NUMBER ASSIGNED TO A PROCESS PLUS ANY
/* ADDITIONAL CHANNELS REQUIRED BY THE IMAGE CURRENTLY BEING EXECUTED
/* BY THE PROCESS.
/*
/* **** WARNING ****
/* THE CHANNEL CONTROL BLOCK IS ASSUMED TO BE FOUR LONG WORDS
/* THROUGHOUT THE EXEC. ITS SIZE MAY BE CHANGED BUT ONLY BY POWERS OF 2.
/*-
```

```
aggregate CCBDEF structure prefix CCB$;
```

```
    UCB longword unsigned;
    WIND longword unsigned;
    STS_OVERLAY union fill;
        STS byte unsigned;
        STS_BITS structure fill;
            AMB bitfield mask;
            IMGTMP bitfield mask;
            RDCHKDON bitfield mask;
            WRTCHKDON bitfield mask;
            LOGCHKDON bitfield mask;
            PHYCHKDON bitfield mask;
        end STS_BITS;
    end STS_OVERLAY;
    AMOD byte unsigned;
    IOC word unsigned;
    DIRP longword unsigned;
    constant 'LENGTH' equals . prefix CCB$ tag K;
    constant 'LENGTH' equals . prefix CCB$ tag C;
end CCBDEF;
```

```
end_module $CCBDEF;
```

```
/*ADDRESS OF ASSIGNED DEVICE UCB
/*ADDRESS OF WINDOW BLOCK
```

```
/*CHANNEL STATUS
```

```
/* MAILBOX ASSOCIATED WITH CHANNEL
/* IMAGE TEMPORARY
/* READ PROTECTION CHECK COMPLETED
/* WRITE PROTECTION CHECK COMPLETED
/* LOGICAL I/O ACCESS CHECK DONE
/* PHYSICAL I/O ACCESS CHECK DONE
```

```
/*ACCESS MODE THAT ASSIGNED CHANNEL
/*NUMBER OF OUTSTANDING I/O REQUESTS ON CHANNEL
/*DEACCESS I/O REQUEST PACKET ADDRESS
/*LENGTH OF CCB
/*LENGTH OF CCB
```

```
module $CDDDBDEF;
```

```
/*+
/* CDDB - Class Driver Data Block
/*
/* Auxiliary data block pointed at by the CRBSL_AUXSTRUC of an MSCP speaking
/* intelligent disk or tape controller. There is one CDDB per such intelligent
/* controller.
/*
/*-
```

```
aggregate CDDDBDEF structure prefix CDDBS;
```

```
CDRPFQL longword unsigned;
CDRPFBL longword unsigned;
SIZE word unsigned;
TYPE byte unsigned;
SUBTYPE byte unsigned;
SYSTEMID byte unsigned dimension 6;
STATUS_OVERLAY union fill;
```

```
    STATUS word unsigned;
    STATUS_BITS structure fill;
        SNGLSTRM bitfield mask;
        IMPEND bitfield mask;
        INITING bitfield mask;
        RECONNECT bitfield mask;
        RESYNCH bitfield mask;
        POLLING bitfield mask;
        ALCLS SET bitfield mask;
        NOCONN bitfield mask;
        RSTRTWAIT bitfield mask;
        QUORLOST bitfield mask;
        DAPBSY bitfield mask;
        "2PBSY" bitfield mask;
```

```
    end STATUS_BITS;
```

```
end STATUS_OVERLAY;
```

```
PDT longword unsigned;
```

```
CRB longword unsigned;
```

```
DDB longword unsigned;
```

```
CNTRLID_OVERLAY union fill;
```

```
    CNTRLID quadword unsigned;
```

```
    CNTRLID_FIELDS structure fill;
```

```
        FILC 2 byte dimension 6 fill prefix CDDDBDEF tag $$;
```

```
        CNTRCMDL byte unsigned;
```

```
        CNTRLCLS byte unsigned;
```

```
    end CNTRLID_FIELDS;
```

```
end CNTRLID_OVERLAY;
```

```
CNTRLFLGS word unsigned;
```

```
CNTRLTMO word unsigned;
```

```
OLDRSPID longword unsigned;
```

```
OLDCMDSTS longword unsigned;
```

```
RSTRTCDRP longword unsigned;
```

```
RETRYCNT byte unsigned;
```

```
DAPCOUNT byte unsigned;
```

```
RSTRTCNT word unsigned;
```

```
RSTRTQFL longword unsigned;
```

```
/*Active CDRP Q FLINK
/*Active CDRP Q BLINK
/*Size of CDDB in bytes
/*Major structure type for Class Driver
/* CDDB structure subtype field
/*48 bit system ID.
```

```
/*Status word
```

```
/* Single stream mode after VC crash
/* IMMEDIATE command PENDING
/* Currently initializing CONNECTION
/* Currently re-CONNECTING to MSCP server
/* re CONNECT initiated by Class Driver
/* Polling for units
/* Allocation class has been set
/* CDDB currently has no connection
/* Waiting to RESTART_NEXT_CDRP
/* CNXMAN quorum lost processing
/* DAP CDRP is busy
/* Failover fork block is busy
```

```
/*Port Descriptor Table address
```

```
/*CRB address
```

```
/*DDB address
```

```
/*Controller ID returned by MSCP END PACKET
```

```
tag $$;
```

```
/* Controller model ! (byte 6 of controller id)
```

```
/* Controller class (byte 7 of controller id)
```

```
/*Controller flags also returned by END PACKET
/*Controller timeout also returned by END PACKET
/*RSPID of oldest outstanding MSCP command
/*Latest MSCP command status for this command
/*Addr of only active CDRP after VC re-establish
/*# retries remaining for CDRP after VC reset
/*# DUSTMR loops until DAP_THREAD
/*# of resynch or connection error since boot
/*Queue wherein we accumulate, sort and select
```



```
RSTRQBL longword unsigned; /* for re-submission following VC re-establish
SAVED_PC longword unsigned; /* Saved PC on internal subroutine calls
UCBCHAIN longword unsigned; /* Chain of UCBs on connection
ORIGUCB longword unsigned; /* Ptr to Orig. UCB if unchained
ALLOCLS longword unsigned; /* Device Allocation Class
DAPCDRP longword unsigned; /* Ptr to Deter.Acc.Path CDRP
CDDBLINK longword unsigned; /* Link in CDDB chain
FOVER_CTR byte unsigned; /* counter of reconnect intervals per failover try
RSVDB byte unsigned; /* reserved byte
WTUCBCTR word unsigned; /* counter of UCBs waiting for mount ver. to finish
                          { so that single stream CDRP processing may begin
RSVD1 longword unsigned; /* reserved longword
RSVD2 longword unsigned; /* reserved longword
RSVD3 longword unsigned; /* reserved longword
RSVD4 longword unsigned; /* reserved longword
constant "LENGTH" equals . prefix CDDBS tag K; /* Standard length of CDDB
constant "LENGTH" equals . prefix CDDBS tag C; /* Standard length of CDDB
PERMCDRP longword unsigned; /* Beginning of a permanent CDRP allocated
                          /* contiguous to CDDB
```

end CDDBDEF;

end_module \$CDDBDEF;

```
module $CDLDEF;
```

```
/**
```

```
/* CDL - SCS CONNECTION DESCRIPTOR LIST
```

```
/*
```

```
/* THERE IS A SYSTEM WIDE LIST OF CONNECTION DESCRIPTORS POINTED
```

```
/* TO BY THE CDL.
```

```
/*-
```

```
aggregate CDLDEF structure prefix CDL$ origin BASE;
```

```
MAXCONIDX word unsigned;
```

```
FILL_1 word fill prefix CDLDEF tag $$;
```

```
FREECDT longword unsigned;
```

```
SIZE word unsigned;
```

```
TYPE byte unsigned;
```

```
SUBTYP byte unsigned;
```

```
FILL_2 longword fill prefix CDLDEF tag $$;
```

```
BASE longword unsigned;
```

```
constant "LENGTH" equals 16 prefix CDL tag $C;
```

```
/*MAXIMUM ! OF CDT'S
```

```
/*RESERVED WORD
```

```
/*ADDR OF 1ST FREE CDT
```

```
/*STRUCTURE SIZE IN BYTES
```

```
/*SCS STRUCTURE TYPE
```

```
/*SCS STRUCT SUBTYPE FOR CDL
```

```
/*RESERVED LONGWORD
```

```
/*BASE OF THE TABLE
```

```
/*LENGTH OF NEG PORTION OF STRUCTURE
```

```
end CDLDEF;
```

```
end_module $CDLDEF;
```



```
module $CDTDEF;
```

```
/**
```

```
/* CDT - SCS CONNECTION DESCRIPTOR TABLE
```

```
/*
```

```
/* THESE DESCRIPTORS ARE POINTED TO BY THE SYSTEM WIDE CONNECTION  
/* DESCRIPTOR LIST (CDL). ONE CDT IS USED PER SCS VIRTUAL CIRCUIT  
/* OR LISTENING CONNECTION.
```

```
/*-
```

```
aggregate CDTDEF structure prefix CDT$;
```

```
MSGINPUT OVERLAY union fill;
```

```
MSGINPUT longword unsigned;
```

```
LINK longword unsigned;
```

```
end MSGINPUT_OVERLAY;
```

```
DGINPUT longword unsigned;
```

```
SIZE word unsigned;
```

```
TYPE byte unsigned;
```

```
SUBTYP byte unsigned;
```

```
ERRADDR longword unsigned;
```

```
PDT longword unsigned;
```

```
RCONID longword unsigned;
```

```
LCONID longword unsigned;
```

```
PB longword unsigned;
```

```
RSTATION byte unsigned dimension 6;
```

```
REASON word unsigned;
```

```
STATE word unsigned;
```

```
constant(
```

```
CLOSED
```

```
, LISTEN
```

```
, OPEN
```

```
, DISC_ACK
```

```
, DISC_REC
```

```
, DISC_SENT
```

```
, DISC_MTCH
```

```
, CON_SENT
```

```
, CON_ACK
```

```
, CON_REC
```

```
, ACCP_SENT
```

```
, REJ_SENT
```

```
, VC_FAIL
```

```
) equals 0 increment 1 prefix CDT tag $C;
```

```
BLKSTATE word unsigned;
```

```
constant(
```

```
CON_PEND
```

```
, ACCP_PEND
```

```
, REJ_PEND
```

```
, DISC_PEND
```

```
, CR_PEND
```

```
, DCR_PEND
```

```
/*ADDR OF MSG INPUT DISPATCHER
```

```
/* OR LINK TO NEXT FREE CDT
```

```
/*ADDR TO CALL ON DG RECEIVED
```

```
/*STRUCTURE SIZE IN BYTES
```

```
/*SCS STRUCTURE TYPE
```

```
/*SCS STRUCT SUBTYPE FOR CDT
```

```
/*ADDR TO CALL FOR ERROR NOTIFICATION
```

```
/*ADDR OF ASSOC PORT DESC TABLE
```

```
/*REMOTE CONNECTION ID
```

```
/*LOCAL CONNECTION ID
```

```
/*ADDR OF ASSOC PATH BLOCK
```

```
/*REMOTE STATION ADDR
```

```
/*REJECT/DISCONNECT REASON
```

```
/*CONNECTION STATE
```

```
/*STATE VALUES:
```

```
/* 0 ORIGIN, INCREMENTS OF 1:
```

```
/* CLOSED
```

```
/* LISTENING FOR CONNX REQUESTS
```

```
/* OPEN
```

```
/* DISCONNECT ACKNOWLEDGED
```

```
/* DISCONNECT REQ RECEIVED
```

```
/* DISCONNECT SENT
```

```
/* DISCONNECT MATCH
```

```
/* CONNECT REQ SENT
```

```
/* CONNECT REQ SENT AND ACK'ED
```

```
/* CONNECT REQ RECEIVED
```

```
/* ACCEPT REQ SENT
```

```
/* REJECT SENT
```

```
/* VIRTUAL CIRCUIT FAILED
```

```
/*
```

```
/*SCS SEND BLOCKED STATE
```

```
/*STATE VALUES:
```

```
/* 1 ORIGIN, INCREMENTS OF 1:
```

```
/* WAITING TO SEND CONNECT REQ
```

```
/* WAITING TO SEND ACCEPT REQ
```

```
/* WAITING TO SEND REJECT REQ
```

```
/* WAITING TO SEND DISCONNECT REQ
```

```
/* WAITING TO SEND CREDIT
```

```
/* WAITING TO SEND CREDIT IN
```

```
/* PREPARATION FOR DISCONNECT
```



```

) equals 1 increment 1 prefix CDT tag $C;
SCSMG longword unsigned;
WAITQFL longword unsigned;
WAITQBL longword unsigned;
CRWAITQFL longword unsigned;
CRWAITQBL longword unsigned;
SEND word unsigned;
REC word unsigned;

MINREC word unsigned;

PENDREC word unsigned;

INITLREC word unsigned;
MINSEND word unsigned;
DGREC word unsigned;
PRIORITY byte unsigned;
FILL_1 byte fill prefix CDTDEF tag $$;
RPROCNAM longword unsigned;
LPROCNAM longword unsigned;
CONDAT longword unsigned;
AUXSTRUC longword unsigned;
BADRSP longword unsigned;

FPC longword unsigned;
FR5 longword unsigned;
CDTLST longword unsigned;
DGSENT longword unsigned;
DGRCDV longword unsigned;
DGDISCARD longword unsigned;
MSGSENT longword unsigned;
MSGRCVD longword unsigned;
SNDDATS longword unsigned;
BYTSENT longword unsigned;
REQDATS longword unsigned;
BYTREQD longword unsigned;
BYTMAPD longword unsigned;
QCR_CNT word unsigned;
QBDT_CNT word unsigned;
FILL_2 longword fill prefix CDTDEF tag $$;
constant "LENGTH" equals . prefix CDT$ tag K;
constant "LENGTH" equals . prefix CDT$ tag C;

end CDTDEF;

end_module $CDTDEF;

```

```

/*
/*ADDR OF SCS RECEIVE BUFFER
/*SEND SCS MSG WAIT QUEUE FLINK
/*SEND SCS MSG WAIT QUEUE BLINK
/*SEND CREDIT WAIT QUEUE FLINK
/*SEND CREDIT WAIT QUEUE BLINK
/*CURRENT SEND CREDIT
/*RECEIVE CREDIT (SEND CREDIT
/* HELD BY REMOTE
/*MINIMUM RECEIVE CREDIT (MIN
/* SEND REQUIRED BY REMOTE)
/*RECEIVE CREDIT NOT YET EXTENDED
/* TO REMOTE
/*INITIAL RECEIVE CREDIT
/*MINIMUM SEND CREDIT
/*DATAGRAMS QUEUED FOR RECEIVE
/*BLOCK TRANSFER PRIORIY
/*RESERVED
/*ADDR OF REMOTE PROCESS NAME
/*ADDR OF LOCAL PROCESS NAME
/*ADDR OF CONNECT DATA
/*ADDR OF AUXILARY DATA STRUCTURE
/*ADDR IN SYSAP TO CALL WITH
/* BAD RESPONSE(UNIMPLEMENTED)
/*SAVED FORK PROCESS PC
/*SAVED FORK PROCESS R5
/*LINK FOR CDT LIST FROM PB
/*# APPLICATION DGS SENT
/*# APPLICATION DGS REC'D
/*# DGS DISCARDED BY DRIVER
/*# APPLICATION MSGS SENT
/*# APPLICATION MSGS REC'D
/*# SEND DATAS INITIATED
/*# BYTES SENT VIA SEND DATAS
/*#REQ DATAS INITIATED
/*BYTES REC'D VIA REQ DATAS
/*TOTAL BYTES MAPPED
/*# TIMES QUEUED FOR SEND CREDIT
/*# TIMES QUEUED FOR BDT
/*RESERVED
/*LENGTH OF CDT
/*LENGTH OF CDT

```



```

module $CEBDEF;
/**
/* COMMON EVENT BLOCK
/*-

```

```

aggregate CEBDEF structure prefix CEB$:

```

```

    CEBFL OVERLAY union fill;
        CEBFL longword unsigned;
        CEBFL BITS structure fill;
            VALID bitfield mask;
            LOCKED bitfield mask;
            REFCNTLCK bitfield mask;
        end CEBFL BITS;
    end CEBFL OVERLAY;
    CEBBL longword unsigned;
    SIZE word unsigned;
    TYPE byte unsigned;
    STS OVERLAY union fill;
        STS byte unsigned;
        STS BITS structure fill;
            NOQUOTA bitfield;
            PERM bitfield;
        end STS BITS;
    end STS OVERLAY;
    PID longword unsigned;
    EFC longword unsigned;
    WQFL longword unsigned;
    WQBL longword unsigned;
    WQCNT OVERLAY union fill;
        WQCNT word unsigned;

```

```

        WQCNT FIELDS structure fill;
            LOCK byte unsigned;
            PROCCNT byte unsigned;
        end WQCNT FIELDS;
    end WQCNT OVERLAY;
    STATE OVERLAY union fill;
        STATE word unsigned;

```

```

        STATE FIELDS structure fill;
            CREATPORT byte unsigned;
            DELETPORT byte unsigned;
        end STATE FIELDS;
    end STATE OVERLAY;
    UIC OVERLAY union fill;
        UIC longword unsigned;
        UIC FIELDS structure fill;
            FILL_2 byte dimension 2 fill prefix CEBDEF tag $$;
            GRP word unsigned;
        end UIC FIELDS;
    end UIC OVERLAY;
    PROT word unsigned;
    REFC word unsigned;
    EFCNAM character length 16;
    constant "LENGTH" equals . prefix CEB$ tag K;

```

```

/*POINTER TO NEXT COMMON EVENT BLOCK

```

```

/*SHMEM MASTER CEB, SET IF VALID ENTRY
/*SHMEM MASTER CEB, SET IF ENTRY LOCKED
/*SHMEM MASTER CEB, LOCKED FOR REFCNT CHG

```

```

/*POINTER TO PREVIOUS COMMON EVENT BLOCK
/*SIZE OF COMMON EVENT BLOCK IN BYTES
/*STRUCTURE TYPE CODE FOR CEB

```

```

/*STATUS FLAGS FOR CEB

```

```

/*NO QUOTA UPDATE
/*PERMANENT CLUSTER

```

```

/*PID OF CREATOR
/*EVENT FLAGS (32 BIT VECTOR)
/*HEAD OF WAIT QUEUE
/*TAIL OF WAIT QUEUE

```

```

/*WAIT QUEUE COUNT(LENGTH)
/*SHMEM FIELDS IN THIS WORD

```

```

/*SHMEM MASTER CEB, ! OF PORT OWNING LOCK
/*SHMEM MASTER CEB, MAX ! OF PROCESSORS

```

```

/*CEF WAIT STATE NUMBER
/*SHMEM FIELDS IN THIS WORD

```

```

/*SHMEM MASTER CEB, ! OF CREATOR PORT
/*SHMEM MASTER CEB, ! OF DELETER PORT

```

```

/*USER IDENT OF CEB CREATOR

```

```

/*GROUP NUMBER OF OWNER

```

```

/*PROTECTION MASK
/*REFERENCE COUNT FOR CEB
/*EVENT CLUSTER TEXT NAME
/*LENGTH OF NORMAL COMMON EVENT BLOCK

```

```
constant 'LENGTH' equals . prefix CEB$ tag C;      /*LENGTH OF NORMAL COMMON EVENT BLOCK

/*
/* THE FOLLOWING FIELDS ARE DEFINED FOR SHARED MEMORY COMMON EVENT BLOCKS.
/* CEB$L_SHB, CEB$W_INDX, AND CEB$L_MASTER ARE CONTAINED IN THE SLAVE CEB WHILE
/* CEB$L_VASLAVE1 IS THE OFFSET IN THE MASTER CEB TO THE FIRST SLAVE CEB.
/*
SHB_OVERLAY union fill;
    SHB longword unsigned;
    VASLAVE1 longword unsigned;
end SHB_OVERLAY;
INDX word unsigned;
FILL_1 word fill prefix CEBDEF tag $$;

MASTER longword unsigned;
constant SLAVLNG equals . prefix CEB$ tag K;
constant SLAVLNG equals . prefix CEB$ tag C;

end CEBDEF;
end_module $CEBDEF;
```

/*SHMEM SLAVE CEB, SHMEM CTL BLK ADR
/*SHMEM MASTER CEB, PTR TO 1ST SLAVE CEB
/*SHMEM SLAVE CEB, INDEX TO MASTER CEB
/*SHMEM SLAVE CEB,
/*SHMEM MASTER CEB, FIELDS IN NEXT N
/* LONGWORDS ARE PROCESSOR REFCNTS
/* (ONE WORD FOR EACH PROCESSOR)
/* (OFFSET IS COMPUTED AT RUN-TIME)
/*SHMEM SLAVE CEB, VA OF MASTER CEB
/*LENGTH OF SHMEM SLAVE COMMON EVENT BLK
/*LENGTH OF SHMEM SLAVE COMMON EVENT BLK


```
module $CHPCTLDEF;
/**
/*
/* Check Protection Control block definition. This block contains the
/* information concerning the type of access check being made.
/*
/*-
aggregate CHPCTL structure prefix CHPCTL$;
    ACCESS longword unsigned;          /* Type of access desired
    FLAGS structure longword unsigned;  /* Control flags
        READ bitfield mask;            /* Read access
        WRITE bitfield mask;           /* Write access
        USEREADALL bitfield mask;       /* Try for read access via READALL
    end FLAGS;
    MODE byte unsigned;                 /* Access mode of request
    FILL_1 byte dimension 3 fill prefix CHPCTLDEF tag $$;
    constant 'LENGTH' equals . prefix CHPCTL$ tag K;
    constant 'LENGTH' equals . prefix CHPCTL$ tag C;
end CHPCTL;
end_module $CHPCTLDEF;
```

```
module $CHPRETDEF;
```

```
/**
```

```
/* Check Protection Control RETURN argument block. This block contains  
/* the information needed to return arguments from the protection check.  
/*  
/*-
```

```
aggregate CHPRET structure prefix CHPRET$;
```

```
  AUDITLEN word unsigned;          /* Size of the audit ACE buffer  
  FILL_1 word fill prefix CHPRETDEF tag $$;  
  AUDIT longword unsigned;         /* Address of the audit ACE buffer  
  AUDITRET longword unsigned;      /* Address of word to get ACE length  
  ALARMLLEN word unsigned;         /* Size of the alarm ACE buffer  
  FILL_2 word fill prefix CHPRETDEF tag $$;  
  ALARM longword unsigned;         /* Address of the alarm ACE buffer  
  ALARMRET longword unsigned;      /* Address of word to get ACE length  
  MATCHED_ACELEN word unsigned;    /* Size of the matched ACE buffer  
  FILL_3 word fill prefix CHPRETDEF tag $$;  
  MATCHED_ACE longword unsigned;   /* Address of the matched ACE buffer  
  MATCHED_ACERET longword unsigned; /* Address of word to get ACE length  
  PRIVS_USED longword unsigned;    /* Address of longword to get privileges used  
  constant 'LENGTH' equals . prefix CHPRET$ tag K;  
  constant 'LENGTH' equals . prefix CHPRET$ tag C;
```

```
end CHPRET;
```

```
end_module $CHPRETDEF;
```



```
module $CIADEF;
/**
/* CIA - Compound Intrusion Analysis block
/*
/* Contains information about suspected and known intruders
/*-

aggregate CIADEF structure prefix CIAS;
  FLINK longword unsigned;      /* Forward link to next block
  BLINK longword unsigned;      /* Backward link to previous block
  SIZE word unsigned;          /* Size of block
  TYPE byte unsigned;           /* Structure type
  SUBTYPE BYTE unsigned;        /* Structure subtype
  constant (
    TERMINAL                    /* Source of breakin attempt
    , TERM USER                 /* Unknown user at terminal
    , NETWORK                   /* Known username at terminal
    , USERNAME                   /* Network source
    ) equals 1 increment 1 tag K; /* Username of parent process
  FLAGS structure word unsigned; /* Breakin type flags
  INTRUDER bitfield mask;       /* Entry is an intruder
end FLAGS;
COUNT word unsigned;           /* Count of attempts
TIME quadword unsigned;         /* Expiration time of entry
DATA character length 56;        /* Data area
constant "LENGTH" equals . tag K; /* Length of CIA block
constant "LENGTH" equals . tag C; /* Length of CIA block

end CIADEF;
end_module $CIADEF;
```

```
module $CIBDTDEF;
/**
/* CIBDT - CI BUFFER DESCRIPTOR TABLE
/*
/* THIS TABLE IS SHARABLE AMONG ALL CI PORTS ON A SYSTEM. BUFFER
/* DESCRIPTORS (BD'S) ARE ALLOCATED FOR CI BLOCK TRANSFERS.
/*-

aggregate CIBDTDEF structure prefix CIBDT$ origin FILL_2;
    WAITFL longword unsigned; /*BD WAIT QUEUE FWD LINK
    WAITBL longword unsigned; /*BD WAIT QUEUE BACK LINK
    SIZE word unsigned; /*STRUCTURE SIZE IN BYTES
    TYPE byte unsigned; /*CI STRUCTURE TYPE
    SUBTYP byte unsigned; /*CI STRUCT SUBTYPE FOR CI BDT
    FREEBD longword unsigned; /*ADDR OF FIRST FREE BD
    MAXIDX longword unsigned; /*MAX INDEX INTO BUFFER DESCRIPTORS
    FILL_1 longword fill prefix CIBDTDEF tag $$; /*RESERVED LONGWORD
    constant BDLIST equals . prefix CIBDT$ tag K; /*START OF BUFFER DESCRIPTORS
    constant BDLIST equals . prefix CIBDT$ tag C; /*START OF BUFFER DESCRIPTORS
    constant 'LENGTH' equals 24 prefix CIBDT tag $C; /*LENGTH OF NEGATIVE PORTION OF STRUCT
/*
    FILL_2 byte fill prefix CIBDTDEF tag $$;
end CIBDTDEF;

end_module $CIBDTDEF;
```



```
module $CIBDDEF;
/*+
/* BD - C1 BUFFER DESCRIPTOR FORMAT
/*-

aggregate CIBDDEF structure prefix CIBD$:
  FLAGS_OVERLAY union fill;
    FLAGS word unsigned; /*FLAGS WORD
    FLAGS BITS structure fill;
      BOFF bitfield length 9; /* BYTE OFFSET OF START OF BUFFER
      FILL_1 bitfield length 3 fill prefix CIBDDEF tag $$; /* 3 SPARE BITS
      AC bitfield mask; /* ACCESS MODE CHECK ENABLED IF SET
      ACMOD bitfield length 2; /* ACCESS MODE REQ'D IN PTE'S
      V bitfield mask; /* VALID BIT
    end FLAGS BITS;
  end FLAGS_OVERLAY;
  KEY word unsigned; /*SEQUENCE NUMBER
  BLEN longword unsigned; /*LENGTH OF MAPPED BUFFER
  SVAPTE longword unsigned; /*SVA OF PTE MAPPING START OF BUFFER
  CDRP_OVERLAY union fill;
    CDRP longword unsigned; /*ADDR OF ASSOCIATED CDRP
    constant 'LENGTH' equals . prefix CIBD$ tag K; /*LENGTH OF A BUFFER DESCRIPTOR
    constant 'LENGTH' equals . prefix CIBD$ tag C; /*LENGTH OF A BUFFER DESCRIPTOR
    LINK longword unsigned; /* OR ADDR OF NEXT FREE DESCRIPTOR
  end CDRP_OVERLAY;
end CIBDDEF;

end_module $CIBDDEF;
```

```
module $CIBHANDEF;
```

```
/*+  
/* CIBHAN - CI BUFFER HANDLE FORMAT  
/*-  
  
aggregate CIBHANDEF structure prefix CIBHAN$;  
    BOFF longword unsigned; /*BYTE OFFSET IN LOCAL BUFFER  
    BNAME longword unsigned; /*NAME OF LOCAL BUFFER  
    RCONID longword unsigned; /*REMOTE CONNECTION ID  
    constant "LENGTH" equals . prefix CIBHAN$ tag K; /*LENGTH OF CI BUFFER HANDLE  
    constant "LENGTH" equals . prefix CIBHAN$ tag C; /*LENGTH OF CI BUFFER HANDLE
```

```
end CIBHANDEF;
```

```
end_module $CIBHANDEF;
```



```
module $CIFQDTDEF;
```

```
/**
```

```
/* CIFQDT - CI FREE MESSAGE/DATAGRAM QUEUE DESCRIPTOR TABLE
```

```
/*
```

```
/* THIS DATA STRUCTURE AND THE QUEUES IT HAS HEADERS FOR MAY BE
```

```
/* SHARED AMONG ALL CI'S ON THE SYSTEM.
```

```
/**-
```

```
aggregate CIFQDTDEF structure prefix CIFQDT$;
```

```
  DGSIZ word unsigned;
```

```
  MSGSIZ word unsigned;
```

```
  FILL_1 longword fill prefix CIFQDTDEF tag $$;
```

```
  SIZE word unsigned;
```

```
  TYPE byte unsigned;
```

```
  SUBTYP byte unsigned;
```

```
  DGCNT word unsigned;
```

```
  MSGCNT word unsigned;
```

```
  DGFL longword unsigned;
```

```
  DGBL longword unsigned;
```

```
  MSGFL longword unsigned;
```

```
  MSGBL longword unsigned;
```

```
  constant 'LENGTH' equals . prefix CIFQDT$ tag K;
```

```
  constant 'LENGTH' equals . prefix CIFQDT$ tag C;
```

```
/*DATAGRAM SIZE (INCL PORT HEADER)
```

```
/*MESSAGE SIZE (INCL PORT HEADER)
```

```
/*RESERVED LONGWORD
```

```
/*STRUCTURE SIZE IN BYTES
```

```
/*CI STRUCTURE TYPE
```

```
/*CI STRUCT SUBTYPE FOR CI FQDT
```

```
/*SUM OF INITL DG CREDITS FOR ALL CONNX
```

```
/*SUM OF INITL MSG CREDITS FOR ALL CONNX
```

```
/*DG FREE QUEUE FWD LINK
```

```
/*DG FREE QUEUE BACK LINK
```

```
/*MSG FREE QUEUE FWD LINK
```

```
/*MSG FREE QUEUE BACK LINK
```

```
/*LENGTH OF CI FQDT
```

```
/*LENGTH OF CI FQDT
```

```
end CIFQDTDEF;
```

```
end_module $CIFQDTDEF;
```

```
module $CLUBDEF;
```

```
/**
/* CLUB - CLUSTER BLOCK.
/*
/* THERE IS ONE CLUB IN A VMS SYSTEM THAT IS PART OF A CLUSTER.
/* THE CLUB DEFINES THE STATE OF THE THE CLUSTER AS KNOWN TO
/* THE LOCAL SYSTEM.
/*-
/*
/* THE CLUB FORK BLOCK (CLUBFKB) IS A SUBBLOCK OF THE CLUB THAT IS
/* USED WHEN IT NECESSARY TO WAIT IN ORDER TO ALLOCATE MEMORY OR
/* WHEN IT IS DESIRABLE TO FORK TO ALLOW OTHER FORK PROCESSES A
/* CHANCE TO RUN.
/*
/* aggregate CLUBFKBDEF structure prefix CLUBFKBS;
/* FORK_BLOCK byte dimension (24);
/* PC2 longword unsigned;
/* STATUS structure longword unsigned;
/* FKB_BUSY bitfield mask;
/* end STATUS;
/* constant 'LENGTH' equals . tag C;
/* constant 'LENGTH' equals . tag K;
end CLUBFKBDEF;
```

```
/*
/* THE CLUB POWERFAIL FORK BLOCK (CLUBPWF) IS A SUBBLOCK OF THE CLUB
/* THAT IS USED TO FORK FROM IPL 31 TO IPL SCS DURING POWER RECOVERY.
```

```
/* aggregate CLUBPWFDEF structure prefix CLUBPWFS;
/* FORK_BLOCK byte dimension (24);
/* STATUS structure longword unsigned;
/* BUSY bitfield mask;
/* end STATUS;
/* constant 'LENGTH' equals . tag C;
/* constant 'LENGTH' equals . tag K;
end CLUBPWFDEF;
```

```
/*
/* THE CLUSTER FAILOVER CONTROL BLOCK (CLUFCB) IS A SUBBLOCK OF
/* THE CLUB THAT IS USED TO SEQUENCE FAILOVER ACTIONS IN A CLUSTER.
/*
```

```
/* aggregate CLUFCBDEF structure prefix CLUFCBS;
/* FORK_BLOCK byte dimension (24);
/* STEP longword unsigned;
/* ID longword unsigned;
/* STATUS structure longword unsigned;
/* ACTIVE bitfield mask;
/* PENDING bitfield mask;
/* SYNC_NODE bitfield mask;
/* FKB_BUSY bitfield mask;
/* WAITING bitfield mask;
/* end STATUS;
/* SYNC_CSB longword unsigned;
/* NODEMAP byte dimension (32);
/* FORK_BLOCK TO WAIT IN
/* CURRENT FAILOVER STEP INDEX
/* FAILOVER INSTANCE IDENTIFICATION
/* CLUSTER FAILOVER STATUS FLAGS
/* FAILOVER ROUTINE ACTIVE
/* FAILOVER PENDING
/* LOCAL NODE IS SYNCHRONIZER
/* FORK_BLOCK IN USE FLAG
/* WAITING FOR NODES TO RESPOND
/* ADDRESS OF CSB OF SYNCHRONIZING SYSTEM
/* BITMAP OF ALL INVOLVED NODES
```



```

RESPMAP byte dimension (32);
constant 'LENGTH' equals . tag C;
constant 'LENGTH' equals . tag K;
end CLUFCBDEF;

aggregate CLUBDEF structure prefix CLUB$:
  CSBQFL longword unsigned;
  CSBQBL longword unsigned;
  SIZE word unsigned;
  TYPE byte unsigned;
  SUBTYPE byte unsigned;
  POLL_CTX longword unsigned;
  LOCAC_CSB longword unsigned;
  JNL_DISPT longword unsigned;
  JNL_FAIL longword unsigned;
  FLAGS structure longword unsigned;
    CLUSTER bitfield mask;
    QF_ACTIVE bitfield mask;
    SHUTDOWN bitfield mask;
    FILL_0 bitfield length 5 fill;
    STS_PPHASE bitfield mask;
    STS_PH0 bitfield mask;
    STS_PH1B bitfield mask;
    STS_PH1 bitfield mask;
    STS_PH2 bitfield mask;
    FILL_01 bitfield length 3 fill;
    FKB_BUSY bitfield mask;
    UNLOCK bitfield mask;
    NO_FORM bitfield mask;
    INIT bitfield mask;
    BACKOUT bitfield mask;
    FILL_1 bitfield fill;
    FILL_2 bitfield fill;
    LOST_CNX bitfield mask;
    QF_FAILED_NODE bitfield mask;
    QF_VOTE bitfield mask;
    QF_NEWVOTE bitfield mask;
    ADJ_QUORUM bitfield mask;
    QUORUM bitfield mask;
    TRANSITION bitfield mask;
    QF_DYNVOTE bitfield mask;
  end FLAGS;
  QUORUM word unsigned;
  VOTES word unsigned;
  NODES word unsigned;
  FSYSID byte dimension (6);
  FTIME quadword;
  LST_XTN longword unsigned;
  LST_COORD longword unsigned;
  LST_TIME quadword;
  LST_CODE byte unsigned;
  LST_PHASE byte unsigned;
  NEWQDVOTES word unsigned;
  CUR_XTN longword unsigned;
  CUR_COORD longword unsigned;
  CUR_TIME quadword;

/* BITMAP OF NODES READY FOR A STEP
/* LENGTH OF CLUFCB
/* LENGTH OF CLUFCB

/* CSB QUEUE FORWARD LINK
/* CSB QUEUE BACKWARD LINK
/* SIZE OF CLUB IN BYTES
/* STRUCTURE TYPE
/* STRUCTURE SUBTYPE
/* SCS POLLER CONTEXT
/* ADDRESS OF THE CSB FOR LOCAL SYSTEM
/* DISPATCH FOR INCOMING JNL MESSAGES
/* JOURNALING FAIL OVER ENTRY POINT
/* CLUSTER STATUS FLAGS
/* THIS NODE IS MEMBER OF CLUSTER
/* QUORUM FILE IS READABLE, CONTRIBUTE TO STATIC QUORUM
/* NODE READY FOR CLUSTER SHUTDOWN
/* PAD TO BYTE BOUNDARY
/* STATUS ANALYZER POLLING PHASE
/* STATUS ANALYZER, PHASE 0 SEEN
/* STATUS ANALYZER, PHASE 1 (COORD CNX BROKEN) SEEN
/* STATUS ANALYZER, PHASE 1 (COORD CNX OK) SEEN
/* STATUS ANALYZER, PHASE 2 SEEN
/* PAD TO BYTE BOUNDARY
/* FORK BLOCK IN USE
/* UNLOCK REQUESTED
/* PROHIBIT NODE FROM FORMING A NEW CLUSTER
/* READY FOR CLUSTER JOIN/FORMATION
/* MUST EVENTUALLY BACK-OUT TRANSITION
/* FILLER
/* FILLER
/* CONNECTION TO CLUSTER MEMBER HAS BEEN LOST
/* A NODE HAS BEEN FAILED OUT
/* QUORUM DISK IS CONTRIBUTING A (STATIC) VOTE
/* STAGING FOR QF VOTE
/* QUORUM ADJUSTMENT REQUESTED
/* CLUSTER IS IN QUORUM
/* STATE TRANSITION IN PROGRESS
/* QUORUM FILE CAN CONTRIBUTE TO DYNAMIC QUORUM

/* CLUSTER QUORUM
/* CLUSTER VOTES
/* NODES IN CLUSTER
/* FOUNDING NODE'S SYSID
/* FOUNDING TIME
/* LAST COMPLETED TRANSACTION NUMBER
/* LAST COMPLETED TRANSACTION COORDINATOR CSID
/* LAST COMPLETED TRANSACTION TIME-STAMP
/* LAST COMPLETED TRANSACTION CODE
/* LAST COMPLETED TRANSACTION CODE
/* STAGING FOR QDVOTES
/* CURRENT TRANSACTION NUMBER
/* CURRENT TRANSACTION COORDINATOR CSID
/* CURRENT TRANSACTION TIME-STAMP

```



```

CUR_CODE byte unsigned;          /* TRANSACTION CODE
CUR_PHASE byte unsigned;         /* TRANSACTION PHASE
MSGCNT word unsigned;            /* OUTSTANDING/WAITING MESSAGE COUNT
COORD longword unsigned;         /* COORDINATOR'S CSB ADDRESS
LOCAL_CSID structure longword unsigned; /* LOCAL SYSTEM CSID
    LOCAL_CSID_IDX word unsigned; /* SLOT INDEX
    LOCAL_CSID_SEQ word unsigned; /* SEQUENCE NUMBER
end LOCAL_CSID;
NEXT_CSID word unsigned;         /* INDEX OF NEXT CSID TO ASSIGN
FIRST_INDEX word unsigned;       /* INDEX OF FIRST CSID ASSIGNED
MAX_XTN longword unsigned;       /* LARGEST TRANSACTION ID SEEN
RETRYCNT longword unsigned;      /* RESOURCE ALLOCATION RETRIES AVAILABLE
CTX0 longword unsigned;          /* LEVEL 0 CONTEXT AREA
RET1 longword unsigned;          /* LEVEL 1 SUBROUTINE RETURN
CTX1 longword unsigned;          /* LEVEL 1 CONTEXT AREA
RET2 longword unsigned;          /* LEVEL 2 SUBROUTINE RETURN
CTX2 longword unsigned;          /* LEVEL 2 CONTEXT AREA
TQE longword unsigned;           /* ADDRESS OF TIMER ENTRY
CSPFL longword unsigned;         /* Q OF FORK-INITIATED REQ'S FOR CSP
CSPBL longword unsigned;         /*
CSPIPID longword unsigned;       /* PID OF CLUSTER SERVER (FOR SCH$WAKE)
NEWTIME quadword unsigned;       /* NEW VALUE OF TIME
NEWTIME_REF quadword unsigned;   /* LOCAL REFERENCE FOR NEW TIME
NEWQUORUM word unsigned;         /* NEW VALUE FOR QUORUM
ADJ_QUORUM word unsigned;        /* QUORUM ADJUSTMENT REQUESTED VALUE
FMERIT longword unsigned;        /* FIGURE OF MERIT FOR OPTIMAL CLUSTER
MEMSEQ word unsigned;            /* MEMBERSHIP STATE SEQUENCE NUMBER
QDVOTES word unsigned;           /* VOTES HELD BY QUORUM DISK
RANDOM longword unsigned;         /* RANDOM NUMBER GENERATOR CONTEXT
CLUDCB longword unsigned;        /* ADDRESS OF QUORUM DISK CONTROL BLOCK
QDNAME character dimension (16); /* QUORUM DISK FULLDEVNAM
FOREIGN_CLUSTER longword unsigned; /* SHIFT REGISTER INDICATING FOREIGN CLUSTER SEEN
FORK_BLOCK byte dimension (CLUBFKB$K_LENGTH); /* FORK BLOCK TO WAIT IN (CLUBFKB SUB-STRUCTURE)
NODEMAP byte dimension (32);     /* BITMAP OF ALL POSSIBLE NODES
CLUFCB byte dimension (CLUFCB$K_LENGTH); /* CLUSTER FAILOVER CONTROL BLOCK
HANG_FKB byte dimension (24);    /* FORK BLOCK TO USE TO BLOCK ACTIVITY AT IPL 4
CLUBPWF byte dimension (CLUBPWF$K_LENGTH); /* FORK BLOCK TO USE DURING POWER RECOVERY
constant 'LENGTH' equals : tag C; /* LENGTH OF CLUB
constant 'LENGTH' equals : tag K; /* LENGTH OF CLUB
end CLUBDEF;
end_module $CLUBDEF;

```



```
module $CLUDCBDEF;
```

```
/**  
/* CLUDCB - Cluster Quorum Disk Control Block  
/*-
```

```
aggregate CLUDCB structure prefix CLUDCB$;
```

```
    CLUDCBFL longword unsigned; /* Forward Link (not used)  
    CLUDCBBL longword unsigned; /* Backward Link (not used)  
    SIZE word unsigned; /* Size of CLUDCB (bytes)  
    TYPE byte unsigned; /* Structure type  
    SUBTYPE byte unsigned; /* Structure subtype  
    UCB longword unsigned; /* Address of quorum disk UCB  
    IRP longword unsigned; /* Address of IRP  
    TQE longword unsigned; /* Address of timer queue entry  
    ACT_COUNT longword unsigned; /* Saved activity counter  
    QFLBN longword unsigned; /* Quorum file logical block number  
    STATE structure word unsigned; /* Quorum disk state bits  
        QS_NOT_READY bitfield mask; /* Not ready  
        QS_READY bitfield mask; /* Ready  
        QS_ACTIVE bitfield mask; /* Active  
        QS_CLUSTER bitfield mask; /* Active and this node is a cluster member  
        QS_VOTE bitfield mask; /* Potential vote  
    end STATE;  
    FLAGS structure word unsigned; /* CLUDCB status bits  
        QF_TIM bitfield mask; /* Read or write timed out  
        QF_RIP bitfield mask; /* Read in progress  
        QF_WIP bitfield mask; /* Write in progress  
        QF_ERROR bitfield mask; /* Quorum disk error has been reported  
        QF_CSPACK bitfield mask; /* CSP request has been acknowledged  
        QF_FIRST_ERR bitfield mask; /* First error has already been seen  
        QF_WRL_ERR bitfield mask; /* Quorum disk is write-locked  
    end flags;  
    COUNTER byte unsigned; /* Iteration counter  
    BUFFER character length 512+4; /* Quorum file buffer
```

```
    constant 'LENGTH' equals . prefix CLUDCB$ tag K; /* Length of CLUDCB  
    constant 'LENGTH' equals . prefix CLUDCB$ tag C; /* Length of CLUDCB
```

```
/* The quorum disk is specified with 4 sysgen parameters. DISK_QUORUM1  
/* to DISK_QUORUM4. Each parameter can specify 4 bytes.
```

```
    constant DISK_QUORUM equals 16 prefix CLUDCB$ tag S;
```

```
end CLUDCB;
```

```
end_module $CLUDCBDEF;
```

```
module $CLUOPTDEF;
```

```
/**  
/* CLUOPT - Cluster Optimal ReConfiguration Context Block  
/**-
```

```
aggregate CLUOPT structure prefix CLUOPT$;
```

```
    PREV longword unsigned; /* Link to previous CLUOPT block  
    BEST longword fill; /* Link to best attained CLUOPT block  
    SIZE word unsigned; /* Size of CLUOPT (bytes)  
    TYPE byte unsigned; /* Structure type  
    SUBTYPE byte unsigned; /* Structure subtype  
    CMERIT longword unsigned; /* Figure of merit of nodes in CMAP  
    ACMERIT longword unsigned; /* Figure of merit of nodes in AMAP + CMAP  
    CMAP byte dimension (32); /* Map of nodes in proposed cluster  
    AMAP byte dimension (32); /* Map of nodes available for cluster  
    RMAP byte dimension (32); /* Map of nodes remaining for consideration  
    constant 'LENGTH' equals . tag K; /* Length of CLUOPT  
    constant 'LENGTH' equals . tag C; /* Length of CLUOPT
```

```
end CLUOPT;
```

```
end_module $CLUOPTDEF;
```



```
module $CONDEF;
```

```
/**
```

```
/*
```

```
/* Console function codes (defined in SRM).
```

```
/*
```

```
/*-
```

```
constant BOOTCPU equals 2 prefix CON tag $C;
```

```
constant CLRWARM equals 3 prefix CON tag $C;
```

```
constant CLRCOLD equals 4 prefix CON tag $C;
```

```
/* Boot function code
```

```
/* Clear warm start flag
```

```
/* Clear cold start flag
```

```
end_module $CONDEF;
```

```
module $CRBDEF;
```

```
/*+
```

```
/* CRB - CHANNEL REQUEST BLOCK
```

```
/*
```

```
/* THERE IS ONE CHANNEL REQUEST BLOCK FOR EACH SET OF DEVICES WHOSE
/* ACCESS TO A SET OF CONTROLLERS MUST BE SYNCHRONIZED. EACH CHANNEL
/* CONTROL BLOCK ALLOWS UP TO FOUR CONTROLLERS TO WHICH THE INDIVIDUAL
/* DEVICES CAN BE ATTACHED.
/*-
```

```
aggregate CRBDEF structure prefix CRB$;
```

```
WQFL longword unsigned;
```

```
WQBL longword unsigned;
```

```
SIZE word unsigned;
```

```
TYPE byte unsigned;
```

```
TT TYPE byte unsigned;
```

```
REFC word unsigned;
```

```
MASK_OVERLAY union fill;
```

```
    MASK byte unsigned;
```

```
    MASK_BITS structure fill;
```

```
        BSY bitfield mask;
```

```
    end MASK_BITS;
```

```
end MASK_OVERLAY;
```

```
FILL 2 byte fill prefix CRBDEF tag $$;
```

```
AUXSTRUC longword unsigned;
```

```
TIMELINK_OVERLAY union fill;
```

```
    TIMECINK longword unsigned;
```

```
    TT MODEM longword unsigned;
```

```
end TIMELINK_OVERLAY;
```

```
DUETIME_OVERLAY union fill;
```

```
    DUETIME longword unsigned;
```

```
    DZ MODEM longword unsigned;
```

```
end DUETIME_OVERLAY;
```

```
TOUTROUT_OVERLAY union fill;
```

```
    TOUTROUT longword unsigned;
```

```
    TTY_TOUTROUT_FIELDS structure fill;
```

```
        DZ_RING byte unsigned;
```

```
        DZ_CARRIER byte unsigned;
```

```
        DZ_DTR byte unsigned;
```

```
        TT_TIMREFC byte unsigned;
```

```
    end TTY_TOUTROUT_FIELDS;
```

```
end TOUTROUT_OVERLAY;
```

```
LINK longword unsigned;
```

```
INTD longword unsigned dimension 9;
```

```
constant 'LENGTH' equals . prefix CRB$ tag K;
```

```
constant 'LENGTH' equals . prefix CRB$ tag C;
```

```
INTD2 longword unsigned dimension 9;
```

```
end CRBDEF;
```

```
end_module $CRBDEF;
```

```
/*WAIT QUEUE FORWARD LINK
```

```
/*WAIT QUEUE BACKWARD LINK
```

```
/*SIZE OF CRB IN BYTES
```

```
/*STRUCTURE TYPE FOR CRB
```

```
/*controller type (DZ11, DZ32)
```

```
/*REFERENCE COUNT OF UCB'S
```

```
/*CHANNEL ALLOCATION MASK
```

```
/* CHANNEL IS BUSY (1=YES)
```

```
/*SPARE UNUSED BYTE
```

```
/*Auxiliary structure addr (CDDDB for class driver)
```

```
/*Thread of CRB's for periodic wakeup
```

```
/*modem control timer thread
```

```
/*Due time for periodic wakeup
```

```
/*DZ11 modem transition detection timer thread
```

```
/*Address of periodic wakeup routine
```

```
/*last sampled ring for DZ11
```

```
/*last sampled carrier for DZ11
```

```
/*last output DTR for DZ11
```

```
/*lines with active modem timers
```

```
/*ADDRESS OF SECONDARY CRB
```

```
/*INTERRUPT TRANSFER VECTOR
```

```
/*LENGTH OF STANDARD CRB
```

```
/*LENGTH OF STANDARD CRB
```

```
/*SECOND INTERRUPT VECTOR
```


module \$VECDEF;

/**
/* CRB INTERRUPT TRANSFER VECTOR STRUCTURE DEFINITIONS
/*-

aggregate VECDEF structure prefix VEC\$;

DISPATCH quadword unsigned;

IDB longword unsigned;

INITIAL longword unsigned;

MAPREG OVERLAY union fill;

MAPREG word unsigned;

MAPREG BITS structure fill;

MAPREG bitfield length 15;

MAPLOCK bitfield mask;

end MAPREG BITS;

end MAPREG_OVERLAY;

NUMREG byte unsigned;

DATAPATH OVERLAY union fill;

DATAPATH byte unsigned;

DATAPATH BITS structure fill;

DATAPATH bitfield length 5;

LWAE bitfield mask;

FILL 1 bitfield fill prefix VECDEF tag \$\$;

PATHLOCK bitfield mask;

end DATAPATH BITS;

end DATAPATH_OVERLAY;

ADP longword unsigned;

UNITINIT longword unsigned;

START longword unsigned;

UNITDISC longword unsigned;

constant 'LENGTH' equals . prefix VEC\$ tag K;

constant 'LENGTH' equals . prefix VEC\$ tag C;

end VECDEF;

end_module \$VECDEF;

/*REGISTER SAVE AND DISPATCH INSTRUCTIONS

/*ADDRESS OF ASSOCIATED IDB

/*CONTROLLER INITIALIZATION ENTRY ADDRESS

/*STARTING MAP REGISTER ALLOCATED

/* MAP REGISTER NUMBER

/* MAP REGISTER ALLOCATION PERMANENT

/*NUMBER OF MAP REGISTERS ALLOCATED

/*BUFFERED DATAPATH ALLOCATED

/* DATAPATH NUMBER

/* LONGWORD ACCESS ENABLED

/* SPARE BIT

/* DATAPATH PERMANENT

/*ADDRESS OF ADP

/*ADDRESS OF UNIT INITIALIZE

/*ADDRESS OF UNIT START

/*ADDRESS OF UNIT DISCONNECT

/*LENGTH OF STANDARD DISPATCHER

/*LENGTH OF STANDARD DISPATCHER

```
module $CSBDEF;
```

```
/*+
```

```
/* CSB - CLUSTER SYSTEM BLOCK.
```

```
/*
```

```
/* THERE IS ONE CSB FOR EACH SYSTEM IN THE CLUSTER.
```

```
/*-
```

```
aggregate CSBDEF structure prefix CSB$;
```

```
  SYSQFL longword unsigned;
```

```
  SYSQBL longword unsigned;
```

```
  SIZE word unsigned;
```

```
  TYPE byte unsigned;
```

```
  SUBTYPE byte unsigned;
```

```
  CDT longword unsigned;
```

```
  PDT longword unsigned;
```

```
  SENTQFL longword unsigned;
```

```
  SENTQBL longword unsigned;
```

```
  RESENDQFL longword unsigned;
```

```
  RESENDQBL longword unsigned;
```

```
  WARMCDRPQFL longword unsigned;
```

```
  WARMCDRPQBL longword unsigned;
```

```
  SENDSEQNM word unsigned;
```

```
  RCVDSQNM word unsigned;
```

```
  ACKRSEQNM word unsigned;
```

```
  UNACKEDMSG byte unsigned;
```

```
  REMACKLIM byte unsigned;
```

```
  CURRCDRP longword unsigned;
```

```
  SWINCARN quadword unsigned;
```

```
  ECOLVL byte unsigned;
```

```
  VERNUM byte unsigned;
```

```
  WARMCDRPS byte unsigned;
```

```
  STATE byte unsigned;
```

```
  constant (
```

```
    OPEN,
```

```
    STATUS,
```

```
    RECONNECT,
```

```
    NEW,
```

```
    CONNECT,
```

```
    ACCEPT,
```

```
    DISCONNECT,
```

```
    REACCEPT,
```

```
    WAIT,
```

```
    DEAD,
```

```
    LOCAL
```

```
  ) equals 1 increment 1 tag K;
```

```
  TQE longword unsigned;
```

```
  TIMEOUT longword unsigned;
```

```
  CSID structure longword unsigned;
```

```
    CSID_IDX word unsigned;
```

```
    CSID_SEQ word unsigned;
```

```
  end CSID;
```

```
  VOTES word unsigned;
```

```
  QUORUM word unsigned;
```

```
  LCKDIRWT word unsigned;
```

```
  QDVOTES word unsigned;
```

```
/* SYSTEM QUEUE FORWARD LINK
```

```
/* SYSTEM QUEUE BACKWARD LINK
```

```
/* SIZE OF CSB IN BYTES
```

```
/* STRUCTURE TYPE
```

```
/* STRUCTURE SUBTYPE
```

```
/* CDT ADDRESS
```

```
/* PDT ADDRESS
```

```
/* SENT LIST HEAD LINK
```

```
/* SENT LIST TAIL LINK
```

```
/* RESEND LIST HEAD LINK
```

```
/* RESEND LIST TAIL LINK
```

```
/* WARM CDRP QUEUE FORWARD LINK
```

```
/* WARM CDRP QUEUE BACKWARD LINK
```

```
/* NEXT SEQUENCE NUMBER TO SEND
```

```
/* LAST SEQUENCE NUMBER RECEIVED
```

```
/* LAST ACK RECEIVED SEQ. NUM.
```

```
/* NUMBER OF UNACKED MESSAGES
```

```
/* REMOTE SIDE'S ACK LIMIT
```

```
/* ADDRESS OF CDRP IN CRITICAL SECTION
```

```
/* REMOTE SOFTWARE INCARN. NUM.
```

```
/* PROTOCOL ECO LEVEL
```

```
/* PROTOCOL VERSION NUMBER
```

```
/* NUMBER OF CDRPS ON FREE QUEUE
```

```
/* STATE OF CONNECTION
```

```
/* STATE VALUES:
```

```
/* OPEN
```

```
/* SENDING/WAITING FOR STATUS
```

```
/* ATTEMPTING TO RECONNECT
```

```
/* BRAND NEW BLOCK
```

```
/* ATTEMPTING INITIAL CONNECTION
```

```
/* ACCEPTING INITIAL CONNECTION
```

```
/* DISCONNECT IN PROGRESS
```

```
/* ACCEPTING RECONNECT REQUEST
```

```
/* TIME-OUT IN PROGRESS
```

```
/* NO CONNECTION POSSIBLE
```

```
/* LOCAL SYSTEM CSB
```

```
/* ADDRESS OF TIMER QUEUE ENTRY
```

```
/* TIME TO GIVE UP RECONNECTING
```

```
/* Cluster System ID
```

```
/* Slot index
```

```
/* Sequence number
```

```
/* VOTES HELD BY NODE
```

```
/* QUORUM SET IN NODE
```

```
/* LOCK MANAGER DISTRIBUTED DIRECTORY WEIGHT
```

```
/* VOTES ASSIGNED TO QUORUM DISK
```



```

PARTNERQFL longword unsigned;      /* LISTHEAD FWD PTR FOR BLOCK-XFER PARTNER BTXs
PARTNERQBL longword unsigned;      /* LISTHEAD BACK PTR FOR BLOCK-XFER PARTNER BTXs
STATUS structure longword unsigned; /* STATUS OF NODE IN CLUSTER
/* THE FOLLOWING BITS ARE ALWAYS MEANINGFUL
LONG BREAK bitfield mask;          /* LONG BREAK IN CONNECTION
MEMBER bitfield mask;              /* NODE IS MEMBER OF LOCAL CLUSTER
REMOVED bitfield mask;            /* NODE REMOVED FROM CLUSTER
QF_SAME bitfield mask;             /* REMOTE QUORUM DISK MATCHES LOCAL DISK
FIL_2 bitfield length 4 fill;      /* PAD TO BYTE BOUNDARY
/* THE FOLLOWING THREE BITS ARE SIGNIFICANT WHILE FORMING/JOINING
/* A CLUSTER
CLUSTER bitfield mask;             /* REMOTE NODE IS CLUSTER MEMBER
QF_ACTIVE bitfield mask;           /* REMOTE NODE'S QUORUM FILE IS READABLE
/* AND MATCHES THIS NODE'S FILE
SHUTDOWN bitfield mask;           /* REMOTE NODE READY FOR CLUSTER SHUTDOWN
FILL_3 bitfield length 5 fill;     /* PAD TO THIRD BYTE BOUNDARY
/* THE FOLLOWING BITS ARE MEANINGFUL IF THIS NODE IS THE COORDINATOR
LOCKED bitfield mask;             /* NODE LOCKED BY COORDINATOR
SELECTED bitfield mask;           /* NODE SELECTED BY COORDINATOR
FILL_5 bitfield length 6 fill;     /* PAD TO BYTE BOUNDARY
/* THE FOLLOWING BITS ARE OF LOCAL SIGNIFICANCE ONLY
LOCAL bitfield mask;              /* MARK CSB FOR LOCAL SYSTEM
STATUS_RCVD bitfield mask;        /* STATUS RECEIVED FROM REMOTE SYSTEM
SEND_STATUS bitfield mask;        /* NEED TO SEND STATUS TO REMOTE SYSTEM
end STATUS;
CLUB longword unsigned;            /* ADDRESS OF CLUB
SB longword unsigned;              /* ADDRESS OF SB FOR REMOTE SYSTEM
REF_CNT byte unsigned;             /* REFERENCE COUNT
FIL_4 byte fill;                  /* PAD to word boundary
NODES word unsigned;              /* Number of nodes in remote cluster
CNX_STS_R0 word unsigned;         /* CONNECTION REQUEST R0 STATUS
CNX_STS_R1 word unsigned;         /* CONNECTION REQUEST R1 STATUS
REFTIME quadword;                /* CREATION/ADDITION/REMOVAL TIME
CNCT byte dimension (16);         /* CONNECT/ACCEPT DATA AREA
NODEMAP byte dimension (32);      /* BITMAP OF NODE CONNECTIVITY
constant 'LENGTH' equals . tag C; /* LENGTH OF CSB
constant 'LENGTH' equals . tag K; /* LENGTH OF CSB
end CSBDEF;
end_module $CSBDEF;

```

```
module $CXBDEF;
/**
/* CXB - COMPLEX CHAINED BUFFER
/*
/* THESE OFFSETS ARE USED IN THE HEADER OF DISJOINT SEGMENTS
/* WHICH ARE TO BE PRESENTED TO THE USER AS A UNIT.
/*
/*-
aggregate CXBDEF structure prefix CXB$:
    FL longword unsigned; /*FORWARD QUEUE LINK
    BL longword unsigned; /*BACKWARD QUEUE LINK
    SIZE word unsigned; /*BLOCK SIZE
    TYPE byte unsigned; /*BLOCK TYPE
    CODE byte unsigned; /*BUFFER CODE
    'LENGTH' word unsigned; /*LENGTH OF DATA
    OFFSET word unsigned; /*OFFSET TO START OF NSP MESSAGE
    LINK_OVERLAY union fill;
        LINK longword unsigned; /*LINK WORD FOR CHAINED DATA MESSAGE
        CHANNEL word unsigned; /* STORE CHANNEL NUMBER FOR AST
    end LINK_OVERLAY;
    IRP longword; /*IRP ADDRESS FOR TRANSMITS
    BOFF word unsigned; /*OFFSET TO DATALINK DATA
    BCNT word unsigned; /*SIZE OF DATALINK DATA
    END ACTION longword unsigned; /*POINTER TO I/O DONE ROUTINE
    SPARE1 longword unsigned; /*RESERVED
    SPARE0 longword unsigned; /*RESERVED
    constant 'LENGTH' equals . prefix CXB$ tag K; /*LENGTH OF A STANDARD CXB
    constant 'LENGTH' equals . prefix CXB$ tag C; /*LENGTH OF A STANDARD CXB

    DLL_OVERLAY union fill;
        DLL character length 32; /*SCRATCH AREA FOR DATALINK LAYER
        STATION quadword unsigned; /*REMOTE STATION ADDRESS
    end DLL_OVERLAY;
    constant DLL equals 32 prefix CXB tag $C; /*SIZE OF CXB$T_DLL
    /**** this field must be quadword
    /**** aligned
    constant HEADER equals . prefix CXB$ tag K; /*CXB SIZE UP TO THIS POINT
    constant HEADER equals . prefix CXB$ tag C; /*CXB SIZE UP TO THIS POINT

    constant TRAILER equals 4 prefix CXB tag $C; /*SPACE AFTER CXB DATA FOR CRC CODE
    FILL_1 longword fill prefix CXBDEF tag $$; /*THIS REPRESENTS THE SPACE TAKEN FOR
    /*THE CRC TRAILER
    constant OVERHEAD equals . prefix CXB$ tag K; /*CXB$C_HEADER + CXB$C_TRAILER
    constant OVERHEAD equals . prefix CXB$ tag C; /*CXB$C_HEADER + CXB$C_TRAILER
end CXBDEF;
end_module $CXBDEF;
```



```
module $DDBDEF;
```

```
/**
```

```
/* DDB - DEVICE DATA BLOCK
```

```
/*
```

```
/* THERE IS ONE DEVICE DATA BLOCK FOR EACH CONTROLLER IN A SYSTEM.
```

```
/**
```

```
aggregate DDBDEF structure prefix DDB$;
```

```
LINK longword unsigned;
```

```
UCB longword unsigned;
```

```
SIZE word unsigned;
```

```
TYPE byte unsigned;
```

```
FILL 1 byte fill prefix DDBDEF tag $$;
```

```
DDT longword unsigned;
```

```
ACPD_OVERLAY union fill;
```

```
    ACPD longword unsigned;
```

```
    ACPD_FIELDS structure fill;
```

```
        FILL 4 byte dimension 3 fill prefix DDBDEF tag $$;
```

```
        ACPCLASS byte unsigned;
```

```
        constant(
```

```
            PACK
```

```
            , CART
```

```
            , SLOW
```

```
            , TAPE
```

```
        ) equals 1 increment 1 prefix DDB tag $K;
```

```
    end ACPD_FIELDS;
```

```
end ACPD_OVERLAY;
```

```
NAME_OVERLAY union fill;
```

```
    NAME character length 16;
```

```
    NAME_ASCIC structure fill;
```

```
        NAME_LEN byte unsigned;
```

```
        NAME_STR character length 15;
```

```
    end NAME_ASCIC;
```

```
end NAME_OVERLAY;
```

```
DRVNAM_OVERLAY union fill;
```

```
    DRVNAME character length 16;
```

```
    DRVNAM_ASCIC structure fill;
```

```
        DRVNAM_LEN byte unsigned;
```

```
        DRVNAM_STR character length 15;
```

```
    end DRVNAM_ASCIC;
```

```
end DRVNAM_OVERLAY;
```

```
SB longword unsigned;
```

```
CONLINK longword unsigned;
```

```
ALLOCLS longword unsigned;
```

```
"2P_UCB" structure longword unsigned;
```

```
    DP_UCB longword unsigned;
```

```
end "2P_UCB";
```

```
constant "LENGTH" equals . prefix DDB$ tag K;
```

```
/*ADDRESS OF NEXT DDB IN LIST (0=LAST)
```

```
/*ADDRESS OF FIRST UCB FOR THIS DDB
```

```
/*SIZE OF DDB IN BYTES
```

```
/*TYPE OF DATA STRUCTURE FOR DDB
```

```
/*SPARE UNUSED BYTE
```

```
/*ADDRESS OF THE DRIVER DISPATCH TABLE
```

```
/*NAME OF DEFAULT ACP FOR DEVICE UNITS
```

```
/*CLASS CODE OF DEFAULT ACP
```

```
/*ACP CLASS CODE FOR DISKS
```

```
/*LARGE DISK PACKS
```

```
/*DISK CARTRIDGES
```

```
/*SLOW (CHEAP) DISKS (E.G., FLOPPY)
```

```
/*BLOCK STRUCTURED TAPE (E.G., TU58)
```

```
/* GENERIC PATHNAME
```

```
/* OF THE DEVICE
```

```
/* AS AN
```

```
/* ASCIC STRUCTURE
```

```
/* CHARACTER COUNT
```

```
/* CHARACTER STRING
```

```
/* DEVICE DRIVER NAME
```

```
/*
```

```
/* AS AN
```

```
/* ASCIC STRUCTURE
```

```
/* CHARACTER COUNT
```

```
/* CHARACTER STRING
```

```
/*ADDR OF SYSTEMBLOCK
```

```
/*NEXT DDB IN CONNECTION SUB-CHAIN
```

```
/*DEVICE ALLOCATION CLASS
```

```
/* ADDRESS OF FIRST UCB ON SECONDARY PATH
```

```
/* OLD STYLE SYNONYM FOR ABOVE
```

```
/*LENGTH OF STANDARD DDB
```

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```
    constant 'LENGTH' equals . prefix DDB$ tag C;    /*LENGTH OF STANDARD DDB
end DDBDEF;
end_module $DDBDEF;
```



```
module $DDTDEF;
```

```
/*+  
/* DDT - DRIVER DISPATCH TABLE  
/*  
/* EACH DEVICE DRIVER HAS A DRIVER DISPATCH TABLE.  
/*-
```

```
aggregate DDTDEF structure prefix DDT$;
```

```
START longword unsigned;  
UNSOLINT longword unsigned;  
FDT longword unsigned;  
CANCEL longword unsigned;  
REGDUMP longword unsigned;  
DIAGBUF word unsigned;  
ERRORBUF word unsigned;  
UNITINIT longword unsigned;  
ALTSTART longword unsigned;  
MNTVER longword unsigned;  
CLONEDUCB longword unsigned;  
FDTSIZE word unsigned;  
filler word fill;  
MNTV_SSSC longword unsigned;  
MNTV_FOR longword unsigned;  
MNTV_SQD longword unsigned;  
constant 'LENGTH' equals . prefix DDT$ tag K;  
constant 'LENGTH' equals . prefix DDT$ tag C;
```

```
end DDTDEF;
```

```
end_module $DDTDEF;
```

```
/*ADDRESS OF DRIVER START I/O ROUTINE  
/*ADDRESS OF UNSOLICITED INTERRUPT ROUTINE  
/*ADDRESS OF FUNCTION DECISION TABLE  
/*ADDRESS OF CANCEL I/O ENTRY POINT  
/*ADDRESS OF DEVICE REGISTER DUMP ROUTINE  
/*SIZE OF DIAGNOSTIC BUFFER IN BYTES  
/*SIZE OF ERROR LOG BUFFER IN BYTES  
/*UNIT INITIALIZATION ENTRY POINT  
/*ALTERNATE START I/O ENTRY POINT  
/*ADDRESS OF MOUNT VERIFICATION ROUTINE  
/*ADDRESS OF CLONED UCB ENTRY POINT  
/*SIZE OF FDT IN BYTES  
{ filler to gain longword alignment  
/*ADDRESS OF SHADOW SET STATE CHANGE MV ENTRY  
/*ADDRESS OF FOREIGN DEVICE MV ENTRY  
/*ADDRESS OF SEQUENTIAL DEVICE MV ENTRY  
/*LENGTH OF DDT  
/*LENGTH OF DDT
```



```
module $DJIDEF;
```

```
/*
```

```
/* Item codes for interface from job controller to LOGINOUT.
```

```
/*
```

```
aggregate ITEM_HEADER structure prefix DJI$;
```

```
    ITEM_SIZE      word unsigned;
    ITEM_CODE      word unsigned;
    constant (
        CPU_MAXIMUM
        , FILE_IDENTIFICATION
        , FLAGS
        , JOB_NAME
        , LOG_QUEUE
        , LOG_SPECIFICATION
        , PARAMETER_1
        , PARAMETER_2
        , PARAMETER_3
        , PARAMETER_4
        , PARAMETER_5
        , PARAMETER_6
        , PARAMETER_7
        , PARAMETER_8
        , RESTART
        , USERNAME
        , WSDEFAULT
        , WSEXTENT
        , WSQUOTA
    ) equals 1 increment 1 prefix DJI$;
    constant (
        INPUT_FLAGS
        , CONDITION VECTOR
        , FILE_SPECIFICATION
    ) equals 32769 increment 1 prefix DJI$;
```

```
/* Item size
/* Item code
{ Define BATCH_OUTPUT items
/* (longword) CPU maximum (10 ms units)
/* (28 bytes) DVI, FID, DID of command procedure
/* (longword) flags
/* (string) job name
/* (string) log file queue
/* (string) log file specification
/* (string) value of P1
/* (string) value of P2
/* (string) value of P3
/* (string) value of P4
/* (string) value of P5
/* (string) value of P6
/* (string) value of P7
/* (string) value of P8
/* (string) value of BATCH$RESTART
/* (string) username
/* (longword) working set default
/* (longword) working set extent
/* (longword) working set quota

{ Define BATCH_INPUT items
/* (longword) flags
/* (1 to 3 longwords) error conditions
/* (string) filespec of failed logfile
```

```
end;
```

```
/*
```

```
/* Structure of FLAGS item.
```

```
/*
```

```
aggregate FLAGS structure fill prefix DJI$;
```

```
    FLAGS structure longword unsigned;
    DELETE_FILE      bitfield mask; /* delete command procedure
    LOG_DELETE       bitfield mask; /* delete log file
    LOG_NULL         bitfield mask; /* log specification is NLA0:
    LOG_SPOOL        bitfield mask; /* spool log file
    NOTIFY           bitfield mask; /* spool log file with /NOTIFY
    RESTARTING       bitfield mask; /* job is restarting
    TERMINATE        bitfield mask; /* job should terminate
    USE_CPU_MAXIMUM  bitfield mask; /* use specified CPU_MAXIMUM
    USE_WSDEFAULT     bitfield mask; /* use specified WSDEFAULT
    USE_WSEXTENT     bitfield mask; /* use specified WSEXTENT
    USE_WSQUOTA      bitfield mask; /* use specified WSQUOTA
```

```
end;
```

```
end;
```

```
/*
```

```
/* Structure of INPUT_FLAGS item.
```

```
/*
```

```
aggregate INPUT_FLAGS structure fill prefix DJI$;
```



```
INPUT_FLAGS structure longword unsigned;  
    NO_FILE      bitfield mask; /* do not return a file  
end;  
end;  
end_module $DJIDEF;
```



```
module $DPTDEF;
```

```
/**
```

```
/* DPT - DRIVER PROLOGUE TABLE
```

```
/*
```

```
/* EACH DEVICE DRIVER HAS A DRIVER PROLOGUE TABLE.
```

```
/**-
```

```
aggregate DPTDEF structure prefix DPT$;
```

```
FLINK longword unsigned;
```

```
BLINK longword unsigned;
```

```
SIZE word unsigned;
```

```
TYPE byte unsigned;
```

```
REFC byte unsigned;
```

```
ADPTYPE byte unsigned;
```

```
FLAGS OVERLAY union fill;
```

```
    FCAGS byte unsigned;
```

```
    FLAGS BITS structure fill;
```

```
        SUBCNTRL bitfield mask;
```

```
        SVP bitfield mask;
```

```
        NOUNLOAD bitfield mask;
```

```
        SCS bitfield mask;
```

```
    end FLAGS BITS;
```

```
end FLAGS_OVERLAY;
```

```
UCBSIZE word unsigned;
```

```
INITTAB word unsigned;
```

```
REINITTAB word unsigned;
```

```
UNLOAD word unsigned;
```

```
MAXUNITS word unsigned;
```

```
VERSION word unsigned;
```

```
constant VERSION equals 4 prefix DPT tag $C;
```

```
DEFUNITS word unsigned;
```

```
DELIVER word unsigned;
```

```
VECTOR word unsigned;
```

```
NAME character length 12;
```

```
LINKTIME quadword unsigned;
```

```
ECOLEVEL longword unsigned;
```

```
constant 'LENGTH' equals . prefix DPT$ tag K;
```

```
constant 'LENGTH' equals . prefix DPT$ tag C;
```

```
end DPTDEF;
```

```
end_module $DPTDEF;
```

```
/*FORWARD LINK TO NEXT DPT
```

```
/*BACKWARD LINK TO PREVIOUS DPT
```

```
/*SIZE OF DRIVER
```

```
/*STRUCTURE TYPE
```

```
/*COUNT OF DDB'S THAT REFERENCE DRIVER
```

```
/*ADAPTER TYPE CODE
```

```
/*DRIVER LOADER FLAGS
```

```
/*DEVICE IS A SUB-CONTROLLER
```

```
/*DEVICE REQUIRES A SYSTEM PAGE
```

```
/*DRIVER IS NOT TO BE UNLOADED
```

```
/*SCS CODE MUST BE LOADER WITH DRIVER
```

```
/*SIZE OF UCB
```

```
/*OFFSET TO INIT TABLE
```

```
/*OFFSET TO RE-INIT TABLE
```

```
/*OFFSET TO UNLOAD ACTION ROUTINE
```

```
/*MAXIMUM UNITS THAT CAN BE CONNECTED
```

```
/*DRIVER PROLOGUE VERSION NUMBER
```

```
/*CURRENT VERSION NUMBER
```

```
/*DEFAULT NUMBER OF UNITS
```

```
/*OFFSET TO DRIVER UNIT DELIVERY ROUTINE
```

```
/*OFFSET TO VECTOR TABLE (IN TTDRIVER)
```

```
/*DRIVER NAME (COUNTED STRING)
```

```
/*LINK DATE AND TIME FROM IMAGE HEADER
```

```
/*ECO LEVEL FROM IMAGE HEADER
```

```
/*LENGTH OF PROLOGUE TABLE
```

```
/*LENGTH OF PROLOGUE TABLE
```


module \$DYNDEF;

```
/*+
/* DATA STRUCTURE TYPE DEFINITIONS
/*
/* EACH DATA STRUCTURE THAT IS ALLOCATED FROM THE DYNAMIC MEMORY
/* POOL SHOULD HAVE A VALID TYPE IN ITS 11TH BYTE.
/*-
```

```
constant(
    ADP
    , ACB
    , AQB
    , CEB
    , CRB
    , DDB
    , FCB
    , FRK
    , IDB
    , IRP
    , LOG
    , PCB
    , PQB
    , RVT
    , TQE
    , UCB
    , VCB
    , WCB
    , BUFIO
    , TYPAMD
    , GSD
    , MVL
    , NET
    , KFE
    , MTL
    , BRDCST
    , CXB
    , NDB
    , SSB
    , DPT
    , JPB
    , PBH
    , PDB
    , PIB
    , PFL
    , JNLWCB
    , PTR
    , KFRH
    , DCCB
    , EXTGSD
    , SHMGSD
    , SHB
    , MBX
```

/*BASE AND OFFSET OF 1

```
/*UNIBUS ADAPTER CONTROL BLOCK
/*AST CONTROL BLOCK
/*ACP QUEUE BLOCK
/*COMMON EVENT BLOCK
/*CHANNEL REQUEST BLOCK
/*DEVICE DESCRIPTOR BLOCK
/*FILE CONTROL BLOCK
/*FORK BLOCK
/*INTERRUPT DISPATCH BLOCK
/*I/O REQUEST PACKET
/*LOGICAL NAME BLOCK
/*PROCESS CONTROL BLOCK
/*PROCESS QUOTA BLOCK
/*RELATIVE VOLUME TABLE
/*TIMER QUEUE ENTRY
/*UNIT CONTROL BLOCK
/*VOLUME CONTROL BLOCK
/*WINDOW CONTROL BLOCK
/*BUFFERED I/O BLOCK
/*TERMINAL TYPEAHEAD BUFFER
/*GLOBAL SECTION DESCRIPTOR BLOCK
/*MAGNETIC TAPE VOLUME LIST
/*NETWORK MESSAGE BLOCK
/*KNOWN FILE ENTRY
/*MOUNTED VOLUME LIST ENTRY
/*BROADCAST MESSAGE BLOCK
/*COMPLEX CHAINED BUFFER
/* NETWORK NODE DESCRIPTOR BLOCK
/* LOGICAL LINK SUBCHANNEL STATUS BLOCK
/* DRIVER PROLOGUE TABLE
/* JOB PARAMETER BLOCK
/* PERFORMANCE BUFFER HEADER
/* PERFORMANCE DATA BLOCK
/* PERFORMANCE INFORMATION BLOCK
/* PAGE FILE CONTROL BLOCK
/* JOURNAL WINDOW CONTROL BLOCK
/* POINTER CONTROL BLOCK
/* KNOWN FILE IMAGE HEADER
/* Data Cache Control Block
/*EXTENDED GLOBAL SECTION DESCRIPTOR
/*SHARED MEMORY GLOBAL SECTION DESCRIPTOR
/*SHARED MEMORY CONTROL BLOCK
/*MAILBOX CONTROL BLOCK
```



```

, IRPE
, SLAVCEB
, SHMCEB
, JIB
, TWP
, RBM
, VCA
, CDB
, LPD
, LKB
, RSB
, LKID
, RSHT
, CDRP
, ERP
, CIDG
, CIMSG
, XWB

, WQE

, ACL
, LNM
, UNUSED_2
, RIGHTSCIST
, KFD
, KFPB
, CIA
, PMB
, PFB
, CHIP
, ORB
) equals 1 increment 1 prefix DYN tag $C;

/*
/* THE FOLLOWING CODES ARE SUBTYPABLE, THAT IS EACH CODE REFERS TO A GENERIC
/* FUNCTION AND WITHIN THAT FUNCTION THERE MAY BE MANY DIFFERENT SUB-TYPES
/* OF BLOCKS. THIS SCHEME WAS ADOPTED TO PRESERVE TYPES. THE SUB-TYPE IS
/* IN THE 12TH BYTE.
/*
constant SUBTYPE equals 96 prefix DYN tag $C;
constant SCS equals 96 prefix DYN tag $C;
constant(
, SCS_CDL
, SCS_CDT
, SCS_DIR
, SCS_PB
, SCS_PDT
, SCS_RDT
, SCS_SB
, SCS_SPPB
, SCS_SPNB
, SCS_UQB
, SCS_HQB
) equals 1 increment 1 prefix DYN tag $C;
constant CI equals 97 prefix DYN tag $C;
constant(

/* I/O REQUEST PACKET EXTENSION
/* SLAVE COMMON EVENT BLOCK
/* SHARED MEMORY MASTER COMMON EVENT BLOCK
/* JOB INFORMATION BLOCK
/* Terminal driver write packet
/* Realtime SPT bit map
/* Disk volume cache block
/* X25 LES CHANNEL DATA BLOCK
/* X25 LES PROCESS DESCRIPTOR
/* LOCK BLOCK
/* RESOURCE BLOCK
/* LOCK ID TABLE
/* RESOURCE HASH TABLE
/* CLASS DRIVER REQUEST PACKET
/* ERRORLOG PACKET
/* DATAGRAM BUFFER FOR CI PORT
/* MESSAGE BUFFER FOR CI PORT
/* DECNET LOGICAL LINK CONTEXT BLOCK
/* (REPLACES 'NDB' BLOCK)
/* DECNET WORK QUEUE BLOCK
/* (REPLACES 'NET' BLOCK)
/* ACCESS CONTROL LIST QUEUE ENTRY
/* LOGICAL NAME BLOCK
/* UNUSED
/* RIGHTS LIST
/* Known File Device Directory block
/* Known File list Pointer Block
/* Compound Intrusion Analysis block
/* Page Fault Monitor Control Block
/* Page Fault Monitor Buffer
/* Internal CHKPRO block
/* Objects Rights Block

/* START OF SUBTYPABLES
/* SYSTEM COMMUNICATION SERVICES

/* CONNECT DISPATCH LIST
/* CONNECT DISPATCH TABLE
/* DIRECTORY BLOCK
/* PATH BLOCK
/* PORT DESCRIPTOR TABLE
/* REQUEST DESCRIPTOR TABLE
/* SYSTEM BLOCK
/* SCA POLLER PROCESS BLOCK
/* SCA POLLER NAME BLOCK
/* MSCP SERVER UNIT BLOCK
/* MSCP SERVER HOST BLOCK

/* CI PORT SPECIFIC

```



```

CI_BDT
CI_FQDT
) equals 1 increment 1 prefix DYN tag $C;
constant LOADCODE equals 98 prefix DYN tag $C;
constant(
NON_PAGED
, PAGED
, LC_MP
, LC_SCS
, LC_CLS
, LC_CHREML
, LC_FPEMUL
, LC_MSCP
, LC_SYSL
) equals 1 increment 1 prefix DYN tag $C;
constant INIT equals 99 prefix DYN tag $C;
constant(
PCBVEC
, PHVEC
, SWPMAP
, MPWMAP
, PRCMAP
, BOOTCB
, CONF
, CST
) equals 1 increment 1 prefix DYN tag $C;
constant CLASSDRV equals 100 prefix DYN tag $C;
constant(
CD_CDDDB
, CD_BBRPG
, CD_SHDW WRK
) equals 1 increment 1 prefix DYN tag $C;
constant CLU equals 101 prefix DYN tag $C;
constant(
CLU_CSB
, CLU_CLUVEC
, CLU_CLUB
, CLU_BTXX
, CLU_CLUDCB
, CLU_CLUOPT
, CLU_LCKDIR
) equals 1 increment 1 prefix DYN tag $C;
constant PGD equals 102 prefix DYN tag $C;
constant (
PGD_F11BC
) equals 1 increment 1 prefix DYN tag $C;
constant JNL equals 103 prefix DYN tag $C;
constant(
JNL_ABL
, JNL_ADL
, JNL_BCB
, JNL_ACBM
, JNL_BUF
, JNL_DB
, JNL_SFT
, JNL_NDL
)
/* BUFFER DESCRIPTOR TABLE
/* FREE QUE DESCRIPTOR TABLE

/* LOADABLE CODE

/* NON PAGED CODE
/* PAGED CODE
/* MULTIPROCESSOR CODE
/* SCS CODE
/* CLUSTER CODE
/* CHAR/DECIMAL INS EMUL
/* FLOAT PNT EMULATOR
/* MSCP SERVER
/* SYSLOA

/* STRUCTURES SET UP BY INIT

/* PROCESS CONTROL BLOCK VECTOR
/* PROCESS HEADER VECTOR
/* SWAPPER MAP
/* MODIFIED PAGE WRITER MAP
/* PROCESS BITMAP
/* BOOT CONTROL BLOCK
/* CONFIGURATION ARRAYS
/* CLUSTER SYSTEM TABLE

/* CLASS DRIVER MAJOR STRUCTURE TYPE CODE

/* CLASS DRIVER DATA BLOCK
/* BAD BLOCK REPLACEMENT PAGE
/* SHADOW SET WORK BUFFER

/* CLUSTER MAJOR STRUCTURE TYPE CODE

/* CONNECTION STATUS BLOCK
/* CLUSTER SYSTEM VECTOR
/* CLUSTER BLOCK
/* CLUSTER BLOCK TRANSFER EXTENSION
/* CLUSTER DISK QUORUM CONTROL BLOCK
/* CLUSTER OPTIMAL RECONFIGURATION CONTEXT BLOCK
/* LOCK MANAGER DISTRIBUTED DIRECTORY VECTOR

/* PAGED DYNAMIC MEMORY

/* F11BXQP BUFFER CACHE.

/* JOURNALING STRUCTURE
/* JOURNALING SUBTYPES
/* AI-BI LIST
/* ALLOCATED DEVICE LIST
/* BUFFER CONTROL BLOCK
/* JOURNAL ACCESS BIT MAP
/* JOURNAL BUFFER
/* JOURNAL DATA BLOCK
/* SPOOL FILE TABLE
/* NAME TABLE DEVICE LIST

```

```

, JNL_JMT
, JNL_RM
, JNL_RRP
, JNL_RCPC
, JNL_RUL
, JNL_VCL
, JNL_VLE
, JNL_CWQ
, JNL_RC
, JNL_MSG
, JNL_BXSTS
, JNL_MSGDATA
, JNL_DIOREAD
) equals 1 increment 1 prefix DYN tag $C;

/* JOURNAL MERGE TABLE
/* JOURNAL REMASTER BLOCK
/* RECOVERY REQUEST BLOCK
/* RCP CONTROL BLOCK
/* RECOVERY UNIT LIST
/* VCB LIST
/* VCB ELEMENT
/* CLUSTER WRITE Q ENTRY
/* READ CONTEXT
/* JOURNAL MESSAGE
/* BLOCK XFER STATUS BLOCK
/* CI MESSAGE DATA
/* DIO read data

/*
/* SPECIAL DYNAMIC MEMORY TYPES. THESE ARE HANDLED SPECIALLY BY
/* EX$DALONONPAGED.
/*
constant SPECIAL equals 128 prefix DYN tag $C; /* START OF SPECIAL TYPES
/* BASE OF 128 AND OFFSET OF 1

constant(
    SHRBUFIO
) equals 128 increment 1 prefix DYN tag $C; /* SHARED MEMORY BUFFERED I/O

end_module $DYNDEF;
```



```
module $EMBHDDEF;
```

```
/*
/* ERROR MESSAGE BUFFER HEADER
/*
/*          ***** CAUTION *****
/*
/* ALL OF THE EMBxxDEF STRUCTURES ASSUME THAT THE HEADER IS
/* EXACTLY ONE LONGWORD IN LENGTH. IF THIS FIELD CHANGES,
/* IF EFFECTS ALL OF THE OTHER STRUCTURES.
/* ALL MESSAGES HAVE TYPE, TIME, SYSTEM ID, AND ERROR SEQUENCE IN THE
/* SAME RELATIVE LOCATIONS.
/*
```

```
aggregate EMBHDDEF structure prefix EMB$ origin HD_SID;
  SIZE word unsigned; /*SIZE OF ERROR MESSAGE IN BYTES
  BUFINDB byte unsigned; /*ALLOCATION BUFFER INDICATOR (0 OR 1)
  VALID byte unsigned; /*ERROR MESSAGE VALID INDICATOR
  constant 'LENGTH' equals 4 prefix EMB tag $K; /*LENGTH OF FIXED PART OF MESSAGE HEADER
  HD_SID longword unsigned; /*SYSTEM ID
  HD_ENTRY_OVERLAY union fill;
    HD_ENTRY word unsigned; /*ERROR MESSAGE ENTRY TYPE
    HD_ENTRY_FIELDS structure fill;
      DEVTYP byte unsigned; /*DEVICE TYPE
      DEVCLS byte unsigned; /*DEVICE CLASS
    end HD_ENTRY_FIELDS;
  end HD_ENTRY_OVERLAY;
  HD_TIME quadword unsigned; /*TIME OF MESSAGE ENTRY
  HD_ERRSEQ word unsigned; /*ERROR SEQUENCE FOR MESSAGE
  constant HD_LENGTH equals . prefix EMB$ tag K; /*LENGTH OF PART COMMON TO ALL MESSAGES
  constant HD_LENGTH equals . prefix EMB$ tag C; /*LENGTH OF PART COMMON TO ALL MESSAGES
end EMBHDDEF;
```

```
end_module $EMBHDDEF;
```

```
module $EMBBCDEF;
```

```
/*
/* BUGCHECK ERROR MESSAGE BUFFER FORMAT (SYSTEM AND USER)
/*
```

```
aggregate EMBBCDEF structure prefix EMB$;
  BC_SID longword unsigned; /*SYSTEM ID
  BC_ENTRY word unsigned; /*ENTRY TYPE
  BC_TIME quadword unsigned; /*TIME IN 64 BITS
  BC_ERRSEQ word unsigned; /*ERROR SEQUENCE NUMBER
  BC_KSP longword unsigned; /*KERNEL STACK POINTER
  BC_ESP longword unsigned; /*EXECUTIVE STACK POINTER
  BC_SSP longword unsigned; /*SUPERVISOR STACK POINTER
  BC_USP longword unsigned; /*USER STACK POINTER
  BC_ISP longword unsigned; /*INTERRUPT STACK POINTER
  BC_R0 longword unsigned; /*REGISTER R0
```

```
BC_R1 longword unsigned; /*REGISTER R1
BC_R2 longword unsigned; /*REGISTER R2
BC_R3 longword unsigned; /*REGISTER R3
BC_R4 longword unsigned; /*REGISTER R4
BC_R5 longword unsigned; /*REGISTER R5
BC_R6 longword unsigned; /*REGISTER R6
BC_R7 longword unsigned; /*REGISTER R7
BC_R8 longword unsigned; /*REGISTER R8
BC_R9 longword unsigned; /*REGISTER R9
BC_R10 longword unsigned; /*REGISTER R10
BC_R11 longword unsigned; /*REGISTER R11
BC_AP longword unsigned; /*ARGUMENT POINTER
BC_FP longword unsigned; /*FRAME POINTER
BC_SP longword unsigned; /*CURRENT STACK POINTER
BC_PC longword unsigned; /*PROGRAM COUNTER
BC_PSL longword unsigned; /*PROCESSOR STATUS
BC_CODE longword unsigned; /*BUGCHECK CODE
BC_PID longword unsigned; /*CURRENT PROCESS ID
BC_LNAME character length 16; /*CURRENT PROCESS NAME
constant BC_LENGTH equals . prefix EMBS tag K; /*SIZE OF FIXED PART OF BUGCHECK MESSAGE
constant BC_LENGTH equals . prefix EMBS tag C; /*SIZE OF FIXED PART OF BUGCHECK MESSAGE
end EMBBCDEF;

end_module $EMBBCDEF;

module $EMBCRDEF;

/*
/* CRASH-RESTART ERROR MESSAGE BUFFER FORMAT
/*

aggregate EMBCRDEF structure prefix EMBS;
CR_SID longword unsigned; /*SYSTEM ID
CR_ENTRY word unsigned; /*ENTRY TYPE
CR_TIME quadword unsigned; /*TIME IN 64 BITS
CR_ERRSEQ word unsigned; /*ERROR SEQUENCE NUMBER
CR_KSP longword unsigned; /*KERNEL STACK POINTER
CR_ESP longword unsigned; /*EXECUTIVE STACK POINTER
CR_SSP longword unsigned; /*SUPERVISOR STACK POINTER
CR_USP longword unsigned; /*USER STACK POINTER
CR_ISP longword unsigned; /*INTERRUPT STACK POINTER
CR_R0 longword unsigned; /*REGISTER R0
CR_R1 longword unsigned; /*REGISTER R1
CR_R2 longword unsigned; /*REGISTER R2
CR_R3 longword unsigned; /*REGISTER R3
CR_R4 longword unsigned; /*REGISTER R4
CR_R5 longword unsigned; /*REGISTER R5
CR_R6 longword unsigned; /*REGISTER R6
CR_R7 longword unsigned; /*REGISTER R7
CR_R8 longword unsigned; /*REGISTER R8
CR_R9 longword unsigned; /*REGISTER R9
CR_R10 longword unsigned; /*REGISTER R10
CR_R11 longword unsigned; /*REGISTER R11
CR_AP longword unsigned; /*ARGUMENT POINTER
```



```

CR_FP longword unsigned;      /*FRAME POINTER
CR_SP longword unsigned;      /*CURRENT STACK POINTER
CR_PC longword unsigned;      /*PROGRAM COUNTER
CR_PSL longword unsigned;     /*PROCESSOR STATUS
CR_POBR longword unsigned;    /*PROGRAM REGION BASE REGISTER
CR_POLR longword unsigned;    /*PROGRAM REGION LIMIT REGISTER
CR_P1BR longword unsigned;    /*CONTROL REGION BASE REGISTER
CR_P1LR longword unsigned;    /*CONTROL REGION LIMIT REGISTER
CR_SBR longword unsigned;     /*SYSTEM BASE REGISTER
CR_SLR longword unsigned;     /*SYSTEM LIMIT REGISTER
CR_PCBB longword unsigned;    /*PROCESS CONTROL BLOCK BASE REGISTER
CR_SCBB longword unsigned;    /*SYSTEM CONTROL BLOCK BASE REGISTER
CR_ASTLVL longword unsigned;  /*AST DELIVERY LEVEL REGISTER
CR_SISR longword unsigned;    /*SOFTWARE INTERRUPT SUMMARY REGISTER
CR_ICCS longword unsigned;    /*INTERVAL TIMER CONTROL STATUS REGISTER
CR_CPUREG longword unsigned;  /*START OF CPU-SPECIFIC IPR'S
end EMBCRDEF;

aggregate EMBCRDEF1 structure prefix EMBS;
  FILL_1 byte dimension 148 fill prefix EMBCRDEF tag $$;
  CR_ICR longword unsigned;    /*INTERVAL COUNT REGISTER
  CR_TODR longword unsigned;   /*TIME OF DAY REGISTER
  CR_ACCS longword unsigned;   /*ACCELERATOR CONTROL REGISTER
  CR_SBIFS longword unsigned;  /* SBI FAULT STATUS
  CR_SBISC longword unsigned;  /* SBI COMPARATOR REGISTER
  CR_SBIMT longword unsigned;  /* SBI MAINT REGISTER
  CR_SBIER longword unsigned;  /* SBI ERROR REGISTER
  CR_SBITA longword unsigned;  /* SBI TIMEOUT ADDR REGISTER
  CR_SBIS longword unsigned dimension 16; /* SBI SILO
end EMBCRDEF1;

aggregate EMBCRDEF2 structure prefix EMBS;
  FILL_2 byte dimension 148 fill prefix EMBCRDEF tag $$;
  FILL_4 byte dimension 12 fill prefix EMBCRDEF tag $$; /*Allow room for ICR,TODR,ACCS
  CR_TBDR longword unsigned;   /* TB DISABLE REGISTER
  CR_CADR longword unsigned;   /* CACHE DISABLE REGISTER
  CR_MCESR longword unsigned;  /* MACHINE CHECK ERROR SUMMARY
  CR_CAER longword unsigned;   /* CACHE ERROR REGISTER
  CR_CMIERR longword unsigned; /* CMI ERROR SUMMARY REGISTER
  /* 16 UNUSED LONGWDS IN EMB
end EMBCRDEF2;

aggregate EMBCRDEF3 structure prefix EMBS;
  FILL_3 byte dimension 244 fill prefix EMBCRDEF tag $$;
  CR_CODE longword unsigned;   /*BUGCHECK/CRASH CODE
  CR_PID longword unsigned;    /*CURRENT PROCESS ID
  CR_LNAME character length 16; /*CURRENT PROCESS NAME
  constant CR_LENGTH equals . prefix EMBS tag K; /*SIZE OF FIXED PART OF BUGCHECK MESSAGE
  constant CR_LENGTH equals . prefix EMBS tag C; /*SIZE OF FIXED PART OF BUGCHECK MESSAGE
end EMBCRDEF3;

end_module $EMBCRDEF;

module $EMBDVDEF;

/*

```

```

/* DEVICE ERROR MESSAGE BUFFER FORMAT (ERROR AND TIMEOUT)
/*

```

```

aggregate EMBDVDEF structure prefix EMB$;

```

```

    DV_SID longword unsigned;
    DV_ENTRY word unsigned;
    DV_TIME quadword unsigned;
    DV_ERRSEQ word unsigned;
    DV_ERTCNT byte unsigned;
    DV_ERTMAX byte unsigned;
    DV_IOSB quadword unsigned;
    DV_STS word unsigned;
    DV_CLASS byte unsigned;
    DV_TYPE byte unsigned;
    DV_RQPID longword unsigned;
    DV_BOFF word unsigned;
    DV_BCNT word unsigned;
    DV_MEDIA longword unsigned;
    DV_UNIT word unsigned;
    DV_ERRCNT word unsigned;
    DV_OPCNT longword unsigned;
    DV_OWNUIC longword unsigned;
    DV_CHAR longword unsigned;
    DV_SLAVE byte unsigned;
    FILL 1 byte fill prefix EMBDVDEF tag $$;
    DV_FUNC word unsigned;
    DV_NAME character length 16;
    DV_REGSAV longword unsigned;

```

```

end EMBDVDEF;

```

```

end_module $EMBDVDEF;

```

```

module $EMBTSEDEF;

```

```

/*
/* TIME STAMP MSG FORMAT
/*

```

```

aggregate EMBTSDEF structure prefix EMB$;

```

```

    TS_SID longword unsigned;
    TS_ENTRY word unsigned;
    TS_TIME quadword unsigned;
    TS_ERRSEQ word unsigned;
    constant TS_LENGTH equals . prefix EMB$ tag K;
    constant TS_LENGTH equals . prefix EMB$ tag C;

```

```

end EMBTSDEF;

```

```

end_module $EMBTSEDEF;

```

```

module $EMBSSDEF;

```

```

/*

```

```

/*SYSTEM ID
/*ENTRY TYPE (1=ERROR, 96=TIMEOUT)
/*TIME OF ERROR
/*ERROR SEQUENCE NUMBER
/*REMAINING NUMBER OF ERROR RETRIES
/*MAXIMUM NUMBER OF ERROR RETRIES
/*FINAL I/O STATUS
/*FINAL DEVICE STATUS
/*DEVICE CLASS
/*DEVICE TYPE
/*REQUESTER PROCESS ID
/*BYTE OFFSET IN PAGE
/*TRANSFER BYTE COUNT
/*STARTING MEDIA ADDRESS
/*PHYSICAL UNIT NUMBER
/*UNIT ERROR COUNT
/*UNIT OPERATION COUNT
/*VOLUME OWNER UIC
/*DEVICE CHARACTERISTICS
/*SLAVE CONTROLLER NUMBER
/*SPARE UNUSED BYTES
/*I/O FUNCTION VALUE
/*DEVICE NAME
/*START OF REGISTER SAVE AREA

```

```

/*SYSTEM ID
/*ENTRY TYPE
/*TIME IN 64 BITS
/*ERROR SEQ !
/*LENGTH OF TIME STAMP MSG
/*LENGTH OF TIME STAMP MSG

```



```
/* SYSTEM SERVICE MESSAGE
```

```
/*
```

```
/* NOTE: SYSTEM SERVICE MESSAGE COVERS:
```

```
/*
```

```
/* 1) THE MESSAGES FROM THE SERVICE
```

```
/*
```

```
/* 2) OPERATOR MESSAGES
```

```
/*
```

```
/* 3) NETWORK MESSAGES
```

```
/*
```

```
/* ONLY THE TYPE FIELD IS DIFERENT
```

```
/*
```

```
aggregate EMBSSDEF structure prefix EMB$;
```

```
SS_SID longword unsigned;
```

```
SS_ENTRY word unsigned;
```

```
SS_TIME quadword unsigned;
```

```
SS_ERRSEQ word unsigned;
```

```
SS_MSGSZ word unsigned;
```

```
constant SS_LENGTH equals . prefix EMB$ tag K;
```

```
constant SS_LENGTH equals . prefix EMB$ tag C;
```

```
SS_MSGTXT byte unsigned;
```

```
end EMBSSDEF;
```

```
end_module $EMBSSDEF;
```

```
module $EMBVMEDEF;
```

```
/*
```

```
/* VOLUME MOUNT/DISMOUNT MESSAGE TYPE
```

```
/*
```

```
aggregate EMBVMEDEF structure prefix EMB$;
```

```
VM_SID longword unsigned;
```

```
VM_ENTRY word unsigned;
```

```
VM_TIME quadword unsigned;
```

```
VM_ERRSEQ word unsigned;
```

```
VM_OWNUIC longword unsigned;
```

```
VM_ERRCNT longword unsigned;
```

```
VM_OPRCNT longword unsigned;
```

```
VM_UNIT word unsigned;
```

```
VM_NAMLNG byte unsigned;
```

```
VM_NAMTXT character length 15;
```

```
VM_VOLNUM word unsigned;
```

```
VM_NUMSET word unsigned;
```

```
VM_LABEL character length 12;
```

```
constant VM_LENGTH equals . prefix EMB$ tag K;
```

```
constant VM_LENGTH equals . prefix EMB$ tag C;
```

```
end EMBVMEDEF;
```

```
end_module $EMBVMEDEF;
```

```
module $EMBSUDEF;
```

```
/*
```

```
/*SYSTEM ID
```

```
/*ENTRY TYPE
```

```
/*TIME IN 64 BITS
```

```
/*ERROR SEQUENCE NUMBER
```

```
/*MESSAGE TEXT SIZE IN BYTES
```

```
/*LENGTH OF CONSTANT PART
```

```
/*LENGTH OF CONSTANT PART
```

```
/*FIRST BYTE OF MESSAGE TEXT
```

```
/*SYSTEM ID
```

```
/*ENTRY TYPE = EMB$K VM OR EMB$K_VD
```

```
/*TIME IN 64 BIT FORMAT
```

```
/*ERROR SEQUENCE NUMBER
```

```
/*OWNER UIC OF THE VOLUME
```

```
/*UNIT ERROR COUNT FROM UCB
```

```
/*UNIT OPERATION COUNT FROM UCB
```

```
/*DEVICE UNIT NUMBER
```

```
/*LENGTH OF DEVICE GENERIC NAME
```

```
/*DEVICE GENERIC NAME
```

```
/*VOLUME NUMBER WITHIN SET
```

```
/*NUMBER OF VOLUMES WITHIN SET
```

```
/*VOLUME LABEL
```

```
/*LENGTH OF BUFFER
```

```
/*LENGTH OF BUFFER
```

```
/* SYSTEM STARTUP MESSAGE
/*
```

```
aggregate EMBSUDEF structure prefix EMBS;
```

```
SU_SID longword unsigned;
SU_ENTRY word unsigned;
SU_TIME quadword unsigned;
SU_ERRSEQ word unsigned;
SU_DAYTIM longword unsigned;
constant SU_LENGTH equals . prefix EMBS tag K;
constant SU_LENGTH equals . prefix EMBS tag C;
```

```
end EMBSUDEF;
```

```
end_module $EMBSUDEF;
```

```
module $EMBMCDEF;
```

```
/*
/* MACHINE CHECK LOG BUFFER FORMAT
/*
```

```
aggregate EMBMCDEF structure prefix EMBS;
```

```
MC_SID longword unsigned;
MC_ENTRY word unsigned;
MC_TIME quadword unsigned;
MC_ERRSEQ word unsigned;
MC_SUMCOD byte unsigned;
MC_TOPF byte unsigned;
MC_OPCODE byte unsigned;
MC_CACHEF byte unsigned;
MC_CES longword unsigned;
MC_UPC longword unsigned;
MC_VA longword unsigned;
MC_D longword unsigned;
MC_TBER0 longword unsigned;
MC_TBER1 longword unsigned;
MC_TMOAD longword unsigned;
MC_PARITY longword unsigned;
MC_SBIERR longword unsigned;
MC_PC longword unsigned;
MC_PSL longword unsigned;
constant MC_LENGTH equals . prefix EMBS tag K;
constant MC_LENGTH equals . prefix EMBS tag C;
```

```
end EMBMCDEF;
```

```
end_module $EMBMCDEF;
```

```
module $EMBSSEDEF;
```

```
/*
/* SOFT ECC DETECTED ERRORS AND SBI ALERT BUFFER FORMAT
/*
```

```
/*SYSTEM ID
/*ENTRY TYPE (IE: BOOT OR POWER RECOVERY)
/*CONTENTS OF SYSTEM TIME QUADWORD
/*ERROR SEQUENCE NUMBER
/*CONTENTS OF TIME OF DAY CLOCK
/*LENGTH OF MESSAGE
/*LENGTH OF MESSAGE
```

```
/*SYSTEM ID
/*ENTRY TYPE
/*TIME IN 64 BITS
/*ERROR SEQUENCE NUMBER
/*SUMMARY CODE
/*TIME OUT PENDING FLAG
/*OPCODE OF INSTRUCTION CAUSING CHECK
/*CACHE DISABLE FLAG, 1=GROUP 0, 2=GROUP 1
/*CPU ERROR STATUS
/*MICRO-PC AT FAULT TIME
/*VIRTUAL ADDRESS AT FAULT TIME
/*CPU D REGISTER AT FAULT TIME
/*TRANSLATION BUFFER STATUS REG 0
/*TRANSLATION BUFFER STATUS REG 1
/*PHYSICAL ADDRESS CAUSING SBI TIMEOUT
/*CACHE STATUS REGISTER
/*SBI ERROR REGISTER
/*PC OF INSTRUCTION CAUSING CHECK
/*PSL OF MACHINE AT FAULT TIME
/*LENGTH OF MACHINE CHECK FRAME
/*LENGTH OF MACHINE CHECK FRAME
```



```
aggregate EMBSSEDEF structure prefix EMBS;
  SE_SID longword unsigned;
  SE_ENTRY word unsigned;
  SE_TIME quadword unsigned;
  SE_ERRSEQ word unsigned;
  SE_NUMCON longword unsigned;
  constant SE_LENGTH equals . prefix EMBS tag K;
  constant SE_LENGTH equals . prefix EMBS tag C;
  SE_TR longword unsigned;
  SE_A longword unsigned;
  SE_B longword unsigned;
  SE_C longword unsigned;
  SE_PC longword unsigned;
  SE_PSL longword unsigned;
end EMBSSEDEF;

end_module $EMBSSEDEF;

module $EMBSBDEF;

/*
/* SBI FAULT BUFFER FORMAT AND ASYNCHRONOUS WRITE ERROR FORMAT
/*

aggregate EMBSBDEF structure prefix EMBS;
  SB_SID longword unsigned;
  SB_ENTRY word unsigned;
  SB_TIME quadword unsigned;
  SB_ERRSEQ word unsigned;
  SB_FAULT longword unsigned;
  SB_SILCMP longword unsigned;
  SB_MAINT longword unsigned;
  SB_ERROR longword unsigned;
  SB_TIMEOUT longword unsigned;
  SB_SILO longword unsigned dimension 16;
  SB_SBIRGS longword unsigned dimension 16;
  SB_PC longword unsigned;
  SB_PSL longword unsigned;
  constant SB_LENGTH equals . prefix EMBS tag K;
  constant SB_LENGTH equals . prefix EMBS tag C;
end EMBSBDEF;

end_module $EMBSBDEF;

module $EMBUIDEF;

/*
/* UNDEFINED ADAPTER INTERRUPT BUFFER FORMAT
/*
```

```
/*SYSTEM ID
/*ENTRY TYPE
/*TIME IN 64 BITS
/*ERROR SEQUENCE NUMBER
/*NUMBER OF MEMORY CONTROLLERS
/*LENGTH OF FIXED PART OF MSG
/*LENGTH OF FIXED PART OF MSG
/*ADAPTOR TR NUMBER
/*MEMORY REGISTER A
/*MEMORY REGISTER B
/*MEMORY REGISTER C
/*PC OF INSTRUCTION AT FAULT TIME
/*PSL OF MACHINE AT FAULT TIME
```

```
/*SYSTEM ID
/*ENTRY TYPE
/*TIME IN 64 BITS
/*ERROR SEQUENCE NUMBER
/*SBI FAULT/STATUS REGISTER
/*SBI SILO COMPARATOR
/*SBI MAINTENANCE
/*SBI ERROR REG
/*SBI TIMEOUT REG
/*SBI SILO REG
/*REGISTER A'S ON BUS (OR 0)
/*PC OF INSTRUCTION AT FAULT TIME
/*PSL OF MACHINE AT FAULT TIME
/*LENGTH OF SBI ERROR BUFFER
/*LENGTH OF SBI ERROR BUFFER
```



```
aggregate EMBUIDEF structure prefix EMB$;
  UI_SID longword unsigned;          /*SYSTEM ID
  UI_ENTRY word unsigned;            /*ENTRY TYPE
  UI_TIME quadword unsigned;        /*TIME IN 64 BITS
  UI_ERRSEQ word unsigned;          /*ERROR SEQUENCE NUMBER
  UI_TR longword unsigned;          /*ADAPTER TR NUMBER
  UI_CSR longword unsigned;         /*ADAPTER CONFIGURATION STATUS REGISTER
  constant UI_LENGTH equals . prefix EMB$ tag K; /*LENGTH OF MESSAGE
  constant UI_LENGTH equals . prefix EMB$ tag C; /*LENGTH OF MESSAGE
end EMBUIDEF;
```

```
end_module $EMBUIDEF;
```

```
module $EMBUEDEF;
```

```
/*
/* ERROR BUFFER FORMAT FOR UNIBUS ERROR SUMMARY REGISTER
/* ***** USED ONLY BY 11/730 *****
/*
```

```
aggregate EMBUEDEF structure prefix EMB$;
  UE_SID longword unsigned;          /*SYSTEM ID
  UE_ENTRY word unsigned;            /*ENTRY TYPE
  UE_TIME quadword unsigned;        /*TIME IN 64 BITS
  UE_ERRSEQ word unsigned;          /*ERROR SEQUENCE NUMBER
  UE_UBERR longword unsigned;       /*UNIBUS ERROR REGISTER
  constant UE_LENGTH equals . prefix EMB$ tag K; /*LENGTH OF MESSAGE
  constant UE_LENGTH equals . prefix EMB$ tag C; /*LENGTH OF MESSAGE
end EMBUEDEF;
```

```
end_module $EMBUEDEF;
```

```
module $EMBSPDEF;
```

```
/*
/* ERROR BUFFER FORMAT FOR SAVING SOFTWARE PARAMETERS FOR CLASS DRIVER THAT
/* CORRESPOND TO A LOGGED MESSAGE (SEE EMBLMDEF BELOW) ORIGINATING
/* IN AN INTELLIGENT MASS STORAGE CONTROLLER.
/*
```

```
aggregate EMBSPDEF structure prefix EMB$;
  SP_SID longword unsigned;          /* System ID
  SP_ENTRY word unsigned;            /* Entry type (of this errorlog buffer)
  SP_TIME quadword unsigned;        /* Time this entry created
  SP_ERRSEQ word unsigned;          /* Error Sequence Number
  SP_CLASS byte unsigned;           /* Device Class
  SP_TYPE byte unsigned;            /* Device Type
  SP_BOFF word unsigned;            /* Byte Offset of data transfer
  SP_BCNT longword unsigned;        /* Byte Count of data transfer
  SP_MEDIA longword unsigned;       /* Media address (LBN) of data transfer
  SP_RQPID longword unsigned;       /* Requesting PID
```



```

SP_IOSB quadword unsigned;      /* Final I/O status
SP_FUNC word unsigned;          /* I/O function code
SP_UNIT word unsigned;          /* Unit number of drive
SP_OPCNT longword unsigned;     /* Cumulative operation count this unit
SP_ERRCNT word unsigned;        /* Cumulative error count for this unit
SP_UCBSTS word unsigned;        /* Copy of UCBSW_STS field
SP_OWNUIC longword unsigned;    /* Unit's owner's UIC
SP_CHAR longword unsigned;      /* Device Characteristics
SP_CMDREF longword unsigned;    /* Command Reference number (RSPID)
SP_DEVNAM character length 16;  /* Device name
constant SP_LENGTH equals . prefix EMB$ tag K;
constant SP_LENGTH equals . prefix EMB$ tag C;

```

end EMBSPDEF;

end_module \$EMBSPDEF;

module \$EMBLMDEF;

```

/*
/* LOGGED MESSAGE (DEVICE DEPENDENT CONTENTS). DRIVER LOGS MESSAGE
/* WHICH MAY COME DIRECT FROM INTELLIGENT MASS STORAGE CONTROLLER.
/*

```

aggregate EMBLMDEF structure prefix EMB\$;

```

LM_SID longword unsigned;      /* System ID
LM_ENTRY word unsigned;        /* Entry type (i.e. Logged Message)
LM_TIME quadword unsigned;    /* Time this entry created
LM_ERRSEQ word unsigned;      /* Error sequence number
LM_CLASS byte unsigned;       /* Device Class
LM_TYPE byte unsigned;        /* Device Type
LM_UNIT word unsigned;        /* Device unit number
LM_DEVNAM character length 16; /* Device name
LM_MSGTYP word unsigned;      /* Type of logged message
constant LM_LENGTH equals . prefix EMB$ tag K;
constant LM_LENGTH equals . prefix EMB$ tag C;

```

end EMBLMDEF;

end_module \$EMBLMDEF;

module \$EMBLTDEF;

```

/*
/* LOGGED MESSAGE MESSAGE TYPES
/*

```

```

constant DM equals 01 prefix EMB tag $C; /* Disk MSCP message
constant DM equals 01 prefix EMB tag $K; /* Disk MSCP message
constant TM equals 02 prefix EMB tag $C; /* Tape MSCP message
constant TM equals 02 prefix EMB tag $K; /* Tape MSCP message
constant PM equals 03 prefix EMB tag $C; /* Port (CI) message
constant PM equals 03 prefix EMB tag $K; /* Port (CI) message

```


constant UM	equals 04	prefix EMB	tag \$C;	/* Port (UDA) message
constant UM	equals 04	prefix EMB	tag \$K;	/* Port (UDA) message
constant AVATN	equals 05	prefix EMB	tag \$C;	/* Available Attention Message
constant AVATN	equals 05	prefix EMB	tag \$K;	/* Available Attention Message
constant DUPUN	equals 06	prefix EMB	tag \$C;	/* Duplicate Unit ! Attention Message
constant DUPUN	equals 06	prefix EMB	tag \$K;	/* Duplicate Unit ! Attention Message
constant IVCMD	equals 07	prefix EMB	tag \$C;	/* Invalid Command Log message.
constant IVCMD	equals 07	prefix EMB	tag \$K;	/* Invalid Command Log message.
constant ACPH	equals 08	prefix EMB	tag \$C;	/* Access Path Attention Message
constant ACPH	equals 08	prefix EMB	tag \$K;	/* Access Path Attention Message
constant INVSTS	equals 09	prefix EMB	tag \$C;	/* Invalid Status in End Message
constant INVSTS	equals 09	prefix EMB	tag \$K;	/* Invalid Status in End Message
constant INVATT	equals 10	prefix EMB	tag \$C;	/* Invalid Attention Message
constant INVATT	equals 10	prefix EMB	tag \$K;	/* Invalid Attention Message
constant NOUNIT_DG	equals 11	prefix EMB	tag \$C;	/* No unit in Datagram
constant NOUNIT_DG	equals 11	prefix EMB	tag \$K;	/* No unit in Datagram

end_module \$EMBLTDEF;

module \$SEMBETDEF;

```
/*
/* ERROR MESSAGE ENTRY TYPE DEFINITIONS
/*
```

constant DE	equals 01	prefix EMB	tag \$C;	/*DEVICE ERROR
constant DE	equals 01	prefix EMB	tag \$K;	/*DEVICE ERROR
constant MC	equals 02	prefix EMB	tag \$C;	/*MACHINE CHECK
constant MC	equals 02	prefix EMB	tag \$K;	/*MACHINE CHECK
constant BE	equals 04	prefix EMB	tag \$C;	/*BUS ERROR
constant BE	equals 04	prefix EMB	tag \$K;	/*BUS ERROR
constant SA	equals 05	prefix EMB	tag \$C;	/*SBI ALERT
constant SA	equals 05	prefix EMB	tag \$K;	/*SBI ALERT
constant SE	equals 06	prefix EMB	tag \$C;	/*SOFT ECC ERROR
constant SE	equals 06	prefix EMB	tag \$K;	/*SOFT ECC ERROR
constant AW	equals 07	prefix EMB	tag \$C;	/*ASYNCHRONOUS WRITE ERROR
constant AW	equals 07	prefix EMB	tag \$K;	/*ASYNCHRONOUS WRITE ERROR
constant HE	equals 08	prefix EMB	tag \$C;	/*HARD ECC ERROR
constant HE	equals 08	prefix EMB	tag \$K;	/*HARD ECC ERROR
constant UBA	equals 09	prefix EMB	tag \$C;	/* 11/780 Unibus Adapter error
constant UBA	equals 09	prefix EMB	tag \$K;	/* 11/780 Unibus Adapter error
constant SI	equals 10	prefix EMB	tag \$C;	/* 11/750 Fault through SBI vector
constant SI	equals 10	prefix EMB	tag \$K;	/* 11/750 Fault through SBI vector
constant UE	equals 11	prefix EMB	tag \$C;	/* 11/730 Unibus Error
constant UE	equals 11	prefix EMB	tag \$K;	/* 11/730 Unibus Error
constant MBA	equals 12	prefix EMB	tag \$C;	/* 11/780 Massbus Adapter Error
constant MBA	equals 12	prefix EMB	tag \$K;	/* 11/780 Massbus Adapter Error
constant SBIA	equals 13	prefix EMB	tag \$C;	/* 11/790 SBIA error
constant SBIA	equals 13	prefix EMB	tag \$K;	/* 11/790 SBIA error
constant CRD	equals 14	prefix EMB	tag \$C;	/* 11/790 CRD log
constant CRD	equals 14	prefix EMB	tag \$K;	/* 11/790 CRD log
constant EMM	equals 15	prefix EMB	tag \$C;	/* 11/790 Environmental Monitor
constant EMM	equals 15	prefix EMB	tag \$K;	/* 11/790 Environmental Monitor
constant HLT	equals 16	prefix EMB	tag \$C;	/* 11/790 Processor Error Halt
constant HLT	equals 16	prefix EMB	tag \$K;	/* 11/790 Processor Error Halt
constant CRBT	equals 17	prefix EMB	tag \$C;	/* 11/790 Console Reboot


```
constant CRBT equals 17 prefix EMB tag $K; /* 11/790 Console Reboot
constant CS equals 32 prefix EMB tag $C; /*COLD START (IE: SYSTEM BOOT)
constant CS equals 32 prefix EMB tag $K; /*COLD START (IE: SYSTEM BOOT)
constant NF equals 35 prefix EMB tag $K; /*NEW FILE CREATED
constant NF equals 35 prefix EMB tag $C; /*NEW FILE CREATED
constant WS equals 36 prefix EMB tag $C; /*WARM START (IE: SYSTEM POWER RECOVERY)
constant WS equals 36 prefix EMB tag $K; /*WARM START (IE: SYSTEM POWER RECOVERY)
constant CR equals 37 prefix EMB tag $C; /*CRASH RE-START
constant CR equals 37 prefix EMB tag $K; /*CRASH RE-START
constant TS equals 38 prefix EMB tag $C; /*TIME STAMP ENTRY
constant TS equals 38 prefix EMB tag $K; /*TIME STAMP ENTRY
constant SS equals 39 prefix EMB tag $C; /*SYSTEM SERVICE MESSAGE
constant SS equals 39 prefix EMB tag $K; /*SYSTEM SERVICE MESSAGE
constant SBC equals 40 prefix EMB tag $C; /*SYSTEM BUGCHECK
constant SBC equals 40 prefix EMB tag $K; /*SYSTEM BUGCHECK
constant OM equals 41 prefix EMB tag $C; /*OPERATOR MESSAGE
constant OM equals 41 prefix EMB tag $K; /*OPERATOR MESSAGE
constant NM equals 42 prefix EMB tag $C; /*NETWORK MESSAGE
constant NM equals 42 prefix EMB tag $K; /*NETWORK MESSAGE
constant VM equals 64 prefix EMB tag $C; /*VOLUME MOUNT
constant VM equals 64 prefix EMB tag $K; /*VOLUME MOUNT
constant VD equals 65 prefix EMB tag $C; /*VOLUME DISMOUNT
constant VD equals 65 prefix EMB tag $K; /*VOLUME DISMOUNT
constant DT equals 96 prefix EMB tag $C; /*DEVICE TIMEOUT
constant DT equals 96 prefix EMB tag $K; /*DEVICE TIMEOUT
constant UI equals 97 prefix EMB tag $C; /*UNDEFINED INTERRUPT
constant UI equals 97 prefix EMB tag $K; /*UNDEFINED INTERRUPT
constant DA equals 98 prefix EMB tag $C; /* Asynchronous Device Attention
constant DA equals 98 prefix EMB tag $K; /* Asynchronous Device Attention
constant SP equals 99 prefix EMB tag $C; /* Software Parameters
constant SP equals 99 prefix EMB tag $K; /* Software Parameters
constant LM equals 100 prefix EMB tag $C; /* Logged Message
constant LM equals 100 prefix EMB tag $K; /* Logged Message
constant LOGMSCP equals 101 prefix EMB tag $C; /* Logged MSCP Message
constant LOGMSCP equals 101 prefix EMB tag $K; /* Logged MSCP Message
constant UBC equals 112 prefix EMB tag $C; /*USER BUGCHECK
constant UBC equals 112 prefix EMB tag $K; /*USER BUGCHECK
```

```
end_module $EMBETDEF;
```

```
module $EO1DEF;
```

```
/*+
```

```
/* EOF1 ANSI MAGNETIC TAPE LABEL  
/* THIS IS THE FIRST LABEL IN FILE TRAILER LABEL SET. IT IS EQUIVALENT TO  
/* HDR1 EXCEPT FOR THE FOLLOWING FIELDS.
```

```
/*-
```

```
aggregate EO1DEF structure prefix EO1$;
```

```
EO1LID longword unsigned;
```

```
FILL 1 character length 50 fill prefix EO1DEF tag $$; /*LABEL IDENTIFIER AND NUMBER 'EOF1'
```

```
BLOCKCNT character length 6; /*SAME AS HDR1
```

```
end EO1DEF; /*BLOCK COUNT
```

```
end_module $EO1DEF;
```



```
module $E02DEF;
```

```
/*+
/* EOF2 ANSI MAGNETIC TAPE LABEL
/* THIS IS THE SECOND LABEL IN THE FILE TRAILER LABEL SET. IT IS EQUIVALENT
/* TO HDR2 EXCEPT FOR THE FOLLOWING FIELDS.
/*-
```

```
aggregate E02DEF union prefix E02$;
    E02LID longword unsigned;
end E02DEF;
```

```
/*LABEL IDENTIFIER AND NUMBER 'EOF2'
```

```
end_module $E02DEF;
```

```
module $EO3DEF;
```

```
/*+
/* EOF3 ANSI MAGNETIC TAPE LABEL
/* THIS IS THE THIRD LABEL IN THE FILE TRAILER LABEL SET. IT IS EQUIVALENT
/* TO HDR3 EXCEPT FOR THE FOLLOWING FIELDS.
/*-
```

```
aggregate E03DEF union prefix E03$;
    E03LID longword unsigned;
end E03DEF;
```

```
/*LABEL IDENTIFIER AND NUMBER 'EOF3'
```

```
end_module $EO3DEF;
```



```
module $EO4DEF;
```

```
/*+  
/* EOF4 ANSI MAGNETIC TAPE LABEL  
/* THIS IS THE FOURTH LABEL IN THE FILE TRAILER LABEL SET. IT IS EQUIVALENT  
/* TO HDR4 EXCEPT FOR THE FOLLOWING FIELDS.  
/*-
```

```
aggregate EO4DEF union prefix EO4$;  
    EO4LID longword unsigned;  
end EO4DEF;
```

```
/*LABEL IDENTIFIER AND NUMBER 'EOF4'
```

```
end_module $EO4DEF;
```

```
module $ERLDEF;
```

```
/*  
/* ERROR LOG ALLOCATION BUFFER HEADER  
/*
```

```
aggregate ERLDEF structure prefix ERL$;
```

```
  BUSY byte unsigned;  
  MSGCNT byte unsigned;  
  BUFIN byte unsigned;  
  FLAGS byte unsigned;  
  NEXT longword unsigned;  
  END_OVERLAY union fill;
```

```
    "END" longword unsigned;
```

```
    constant "LENGTH" equals . prefix ERL$ tag K;  
    constant "LENGTH" equals . prefix ERL$ tag C;
```

```
  END_BITS structure fill;
```

```
    LOCK bitfield mask;
```

```
    TIMER bitfield mask;
```

```
  end END_BITS;
```

```
  end END_OVERLAY;
```

```
end ERLDEF;
```

```
end_module $ERLDEF;
```

```
/*NUMBER OF BUSY MESSAGES IN BUFFER  
/*NUMBER OF COMPLETED MESSAGES IN BUFFER  
/*BUFFER INDICATOR OF RESPECTIVE BUFFER  
/*BUFFER CONTROL FLAGS  
/*ADDRESS OF NEXT AVAILABLE SPACE IN BUFFER
```

```
/*ADDRESS OF END OF BUFFER + 1  
/*LENGTH OF ALLOCATION BUFFER HEADER  
/*LENGTH OF ALLOCATION BUFFER HEADER
```

```
/*BUFFER ALLOCATION INTERLOCK  
/*TIMER ACTIVE
```


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